...ished 1916 as
...E OIL WEEKLY

FEBRUARY 15, 1955

# WORLD OIL

SPECIALIZED FOR EXPLORATION, DRILLING
PRODUCING OPERATIONS AND MANAGEMENT

...Gulf Publishing Company

$2 Per Year; Price This Copy $1

**FORECAST-REVIEW ISSUE**

- **A look at the future . . . rapid growth to continue.**
- **A review of 1955 . . . record-breaking activities.**

UNIVERSITY OF MICHIGAN
FEB 1955
SCIENCE LIBRARY

... sometimes the Reed Man takes the high road!

A familiar sight in the marshlands of Louisiana is the Reed plane . . . bringing the Reed man and his knowledge of rotary drilling tools to a drilling barge.* His transportation may be unusual but the contact with isolated rigs to learn their needs and offer time- and money-saving advice is a regular part of the Reed man's work . . . a task which is daily routine.

Onshore or offshore . . . on a mountain side or in a marshland . . . you can be certain the Reed man will get to your location by whatever means of transportation will get him there at the time he can be most helpful.

* Reed initiated this service in 1950 to become the first oil tool manufacturer to have its own plane for regular contact with water-location drillsites.

REED

ROLLER BIT COMPANY

HOUSTON 1, TEXAS

NEW YORK LONDON BUENOS AIRES

# Performance-Proved

## *There's a Lone Star Cement for Every Oil Field Job*

● Cement plays an important part in successful oil-well completion and long-term operation. Much depends on selecting the *right* cement for the job—considering depth, temperature, pressure or pipe corrosion.

On performance, and there's no better guide, the Oil Man *knows* that, when he pumps a Lone Star Cement down the hole, he is *sure* of the utmost in performance and protection.

This holds true for shallow holes and for the deepest wells yet drilled, for sulphate-water conditions, for casings, squeeze jobs, plug backs and restoring lost circulation.

Select the LONE STAR Cement that fits your job—all four cements are performance-proved, continuously laboratory-tested too, backed by an organization which never stops trying to keep pace with Oil Industry progress.

# LONE STAR CEMENT CORPORATION

*Offices:* DALLAS • HOUSTON • ABILENE, TEX. • NEW ORLEANS • KANSAS CITY, MO. • BIRMINGHAM • ALBANY, N. Y. BETHLEHEM, PA. • BOSTON • CHICAGO • INDIANAPOLIS • NEW YORK • NORFOLK • RICHMOND • WASHINGTON, D. C.

Volume 142, No. 3 February 15, 1956

# WORLD OIL

Established 1916 as The OIL WEEKLY


Page

## CURRENT OUTLOOK SECTION

Index to Tables and Charts ..... 69
Editor's Page ..... *Warren L. Baker* 71
Salient Oil and Gas Statistics ..... 72
Supply and Demand ..... *L. J. Logan* 74
Exports and Imports ..... 80
Crude Prices ..... 84
Gasoline Prices ..... 89
Stocks of Oils ..... 90
Oil Using Units ..... 94
Refinery Operations ..... 96
Legislative Outlook ..... 98

## EXPLORATION SECTION

Wildcat Drilling ..... 107
Wildcatting Success ..... 109
Geophysical Crews ..... 112
U. S. Petroleum Reserves ..... 116
Natural Gas Reserves ..... 122

## DRILLING SECTION

U. S. Drilling Forecast
*Warren L. Baker and Cecil W. Smith* 125
Average Depth Per Well ..... 130
Greatest Well Depths ..... 130
Owners of New Wells ..... 131
U. S. Drilling Methods ..... 131
Rigs in Operation ..... 132
Location of U. S. Rigs ..... 134
Rig Penetration Rates ..... 136
U. S. Drilling Costs ..... 138
Drilling Depth Record ..... 142
Drilling by Contractors ..... 148
Contractor Rig Ownership ..... 148

## PRODUCTION SECTION

Artificial Lift Wells ..... 151
U. S. Crude Production ..... 152
Natural Gas Production and Use ..... 157
Natural Gas Liquids ..... 162
Liquefied Petroleum Gas Sales ..... 164
Producing Oil Wells ..... 172
Producing Gas Wells ..... 176
Producing Depth Records ..... 180

## INTERNATIONAL SECTION

World Crude Production ..... 185
Drilling Outside U. S. ..... 190

## DEPARTMENTS

Who's Meeting Where ..... 66
Drilling Hints ..... 192
Production Hints ..... 200
What's Happening Among Men in the Industry ..... 206
What's Happening Among Industry Associations ..... 222
Companies in the News ..... 226
What's Happening Among Service and Supply Men ..... 230
New Books, Maps and Movies ..... 242
Squeaks from the Bullwheel ..... 244
ADVERTISERS' INDEX ..... 250


# your quick look

# at this issue

BUSY OIL MEN: To help you put first things first, scan these time-saving digests on this and the following pages, checking ☑ those you want to read first.

## CURRENT OUTLOOK

☐ **Supply and Demand** in 1956 will call for a moderate increase in oil industry operations above 1955 levels. Refinery runs will need to be stepped up; higher crude production will find markets. U. S. Bureau of Mines forecast figures are on..... **Page 74**

☐ **Exports and Imports** . . . The U. S. in 1956 will import 1,331,000 barrels per day of crude oil and refined products, while exporting 333,000 barrels. Its imports will exceed its exports by approximately 1 million barrels per day, a new high for net imports. The bringing in of foreign oils will be held within reasonable bounds, however. The federal government will restrict imports if they become excessive.. **Page 80**

☐ **Crude Prices** . . . Steady trend is expected to continue through 1956. Several major companies have predicted no general increase. Some producers cling to the hope that better prices for crude will help offset increased costs of 1955..... **Page 84**

☐ **Gasoline Prices** . . . Gasoline is still a bargain. Average price in U. S. (excluding taxes) is currently about 21¼ cents a gallon. Average price in '55 was 21.42 cents. Keen competition keeps prices of other petroleum products in line..... **Page 89**

☐ **Stocks of Oils** . . . Domestic stocks of crude oil entered 1956 at an all-time low in relation to demand. Refined product inventories were 7 million barrels less than at the beginning of 1955. Favorable inventory conditions such as these point to another record year for the oil industry—particularly with new demand increases in the offing..... **Page 90**

**Turn the Page ▸**

## THIS ISSUE . . .

☐ **Oil and Gas Using Units** continue to grow at a sharp pace as the U. S. population continues to buy more and more cars, trucks, farm tractors and home oil and natural gas heating and cooking units. The statistics that tell the story are on..... **Page 94**

☐ **Refinery Operations** . . . U. S. crude runs to stills likely to be near 7,746,000 barrels a day in '56 . . . an increase of 3.6 percent. Past year was an outstanding one for refiners . . . marked by more stable prices . . . return of stocks to normal . . . and soaring demand. ..... **Page 96**

☐ **Legislative Outlook** . . . 84th Congress is a vital one for the oil industry. Gas bill . . . depletion . . . imports . . . public lands. For a rundown of key issues, turn to ..... **Page 98**

## EXPLORATION ARTICLES

☐ **Wildcat Drilling** . . . Due to set new records in '56 WORLD OIL estimates 11,768 wildcats will be drilled this year, up 2.5 percent over '55. The upswing that started in 1944 continued last year when 11,480 wildcats were drilled..... **Page 107**

☐ **Wildcatting Success** . . . Of the 11,480 wildcats drilled in 1955, one out of eight or 1425 were successful producers. A slightly lower success record of the previous two years but better than the 1946 record when 1 out of every 10.3 was successful..... **Page 109**

☐ **Geophysical Crews** . . . Activity leveled off in '55, stopping the downward trend begun in November '53. Seismic activity showed a slight increase in '55, with 575 crews working in November compared with 567 the same of '54. Other details on... **Page 112**

☐ **U. S. Petroleum Reserves** . . . Reserves of crude oil and natural gas liquids held an even keel or perhaps increased a little in 1955. New reserves likely equalled or exceeded '55's production of both resources. **Page 116**

☐ **Natural Gas Reserves** . . . 1955 increase, if any, was moderate. Substantial new reserves were proved up by wildcat and development drilling. But both old and new reserves lost ground. Marketing of natural gas increased..... **Page 122**

## DRILLING ARTICLES

☐ **Drilling Forecast** . . . Another record-breaking year is in prospect for U. S. with the drilling of 57,625 wells forecast by WORLD OIL. This is 3.2 percent or 1800 more wells than the record number drilled in '55. The drilling of 238,049,000 feet of hole during coming year is forecast. Peak crude oil and natural gas production combined with stable prices encourage expanded drilling operations. The 55,819 wells completed in 1955 topped 1954's high by 3622. Footage in '55 was up 7 percent from 211.25 million feet in 1954 to almost 227 million feet in 1955. For other 1955 figures and forecasts for 1956, see..... **Page 12**

☐ **Average Depth Per Well** . . . Depths averaged 4075 feet per well in '55, 27 feet per well deeper than in '54. A total of 55,819 new wells was completed in '55 for total depth of 227,479,545 feet, a new record. For other figures, see..... **Page 130**

☐ **Greatest Well Depths** . . . South Louisiana is leaving other areas behind in average depth per well. Mississippi Delta's 2000 new well completions in '55 average 10,030 feet per well . . . more than double the national average and going up..... **Page 130**

☐ **Owners of New Wells** . . . Trend toward greater small company participation in U. S. drilling activity continues. Some 79.75 percent (44,513) of the 55,819 wells completed in U. S. in 1954 were owned by small companies or individual operators. This represents a 1.65 increase over '54. The 23 largest producing companies owned only 20.25 percent (11,306) of the wells ..... **Page 131**

☐ **Drilling Methods** . . . Preference for rotary drilling rigs over cable tool methods continues to increase. An estimated 86.5 percent of all wells completed in U. S. last year were drilled by rotary rigs. In '54 it was 85 percent. In the last ten years, rotary drilling has shown an increase of 19.3 percent in popularity..... **Page 131**

☐ **Rigs in Operation** . . . U. S. drilling rig activity turned upward in '55 after a two-year decline. Average number of operating rigs at end of each month in '55 was 4867, largest since 1947. Peak month was November with 5160 rigs in operation..... **Page 132**

☐ **Location of U. S. Rigs** . . . South Louisiana attractive . . . 333 rigs in operation at end of '55 are 94 more than at same time in '54. Texas continues fast pace with 1472 rigs in operation at year's end . . . an increase of 101. New Mexico made its bid to rank with top oil-producers with 167 rigs in operation at end of year. For activity in other states, turn to... **Page 134**

☐ **Penetration Rates** . . . New marks set for tenth year straight. For 1955, an average of 46,739 feet was drilled per rig operated. Faster penetration rates helped push the depth total of 227.5 million feet, a new mark and a 7.7 percent increase. Penetration rate is up 101 percent over 1946. Each operating rig drilled an average of 11.2 wells in '55, 0.9 of a well more than in '54 ..... **Page 136**

☐ **Drilling Costs** from the grass roots down to 15,000 feet have been the subject of an exhaustive survey by the American Petroleum Institute, Independent Petroleum Association of America and Mid-Conti-

WORLD OIL, published every month except semi-monthly in February and August. Entered as THE OIL WEEKLY as second class mail matter December 25, 1916, at postoffice at Houston, Texas, under the act of March 3, 1879.

# Oil Outlook Is Good

**A record-breaking year** will be experienced by the oil and gas industry in 1956. The outlook is good for the exploration-drilling-producing branch of the business. Further growth lies ahead. Consequently a record shattering year is in prospect.

The U. S. oil and gas industry can look forward to the consumption of more petroleum products than ever before. There will be record-breaking U. S. crude oil production, despite larger imports. Production and consumption of natural gas will be the greatest ever known. U. S. drilling will be at record levels for both wells and footage.

The rate of growth is not expected to be as large as experienced in 1955. However, it must be remembered that gains in 1955 were abnormally high. Growth in 1956 is likely to be nearer to normal levels. Coming on the heels of the abnormally large growth in 1955, anticipated 1956 increases will boost U. S. operations to extremely high levels.

The outlook is equally bright abroad. There will be record-breaking consumption of petroleum products outside of the U. S. Far more crude oil will be produced than ever before, and a rise in drilling volumes abroad is expected.

Various statistics, charts and articles in this Forecast-Review issue give additional details on 1956 prospects in the U. S. and abroad.

•

**The long-range outlook also is bright** for the oil and gas industry. There is every indication that consumption will continue to grow both in the U. S. and elsewhere. This will require higher producing rates, which in turn will make it necessary for the industry to further expand its drilling rates and continue its vigorous installation of other new producing facilities.

Demand for oil in the U. S. will reach an estimated level of 12.8 million barrels daily, an increase of 53 percent over current consumption. Consumption in the rest of the Free World will show an increase of 104 percent by 1965, attaining 12.0 million barrels per day.

These forecasts are contained in a booklet prepared by the petroleum department of Chase Manhattan Bank. They are based on recent and present trends.

The report predicts that production of crude oil and natural gas liquids in the U. S. may approximate 10 million barrels per day in 1965. This is in contrast with current production of 8½ million barrels per day.

At the same time, the report estimates that production in the Free Foreign World will almost double to 14.7 million barrels per day.

•

**Huge expenditures required.** To provide sufficient supply during the next decade, the report states capital expenditures of $73.5 billion will be necessary in the U. S., and $41.5 billion for the remainder of the free world. This makes a total of $115 billion for the Free World during the next 10 years.

Chase Manhattan has estimated that $66.5 billion of the above amount will be capital expenditures in the exploration-drilling-producing branch of the industry. Of this amount, $50.6 billion is expected to be spent in the U. S. and $15.9 elsewhere in the Free World.

•

**These prospects presage** that the oil industry will be kept busy during the next 10 years. Demand is going to grow so rapidly, sufficient supplies can be provided only through further expansion of operating levels.

Warren L. Baker

# Salient Oil and Gas Statistics of U. S.

**Demand for all oils expected to increase 4.2 percent, with domestic use up 4.8 percent and exports down 9.7 percent. Gain of 3.5 percent in crude production forecast. Runs to stills to rise 3.9 percent. Imports to go higher.**

| ITEM | THOUSANDS OF BARRELS, EXCEPT AS NOTED | | | | |
|---|---|---|---|---|---|
| | 1954 | 1955 | % Diff. '54-'55 | 1956 Forecast | % Diff. '55-'56 |
| **Total Demand, All Oils** | **2,959,449** | **3,183,000** | **+ 7.6** | **3,316,000** | **+ 4.2** |
| (Daily Average) | 8,108 | 8,721 | + 7.6 | 9,060 | + 3.9 |
| Gasoline, Total Demand | 1,272,809 | 1,351,000 | + 6.1 | 1,406,000 | + 4.1 |
| (Daily Average) | 3,487 | 3,701 | + 6.1 | 3,842 | + 3.8 |
| Kerosine, Total Demand | 123,163 | 119,000 | — 3.4 | 120,000 | + 0.8 |
| (Daily Average) | 337 | 326 | — 3.4 | 328 | + 0.6 |
| Residual Fuel Oil, Total Demand | 548,955 | 582,000 | + 6.0 | 580,000 | — 0.4 |
| (Daily Average) | 1,504 | 1,595 | + 6.0 | 1,584 | — 0.7 |
| Distillate Fuel Oil, Total Demand | 550,570 | 601,000 | + 9.2 | 642,000 | + 6.8 |
| (Daily Average) | 1,508 | 1,647 | + 9.2 | 1,754 | + 6.5 |
| **Domestic Demand, All Oils** | **2,829,428** | **3,048,000** | **+ 7.7** | **3,194,000** | **+ 4.8** |
| (Daily Average) | 7,752 | 8,351 | + 7.7 | 8,727 | + 4.5 |
| Gasoline, Domestic Demand | 1,238,346 | 1,316,000 | + 6.3 | 1,374,000 | + 4.4 |
| (Daily Average) | 3,393 | 3,605 | + 6.2 | 3,754 | + 4.1 |
| Kerosine, Total Demand | 118,260 | 115,500 | — 2.3 | 117,000 | + 1.3 |
| (Daily Average) | 324 | 316 | — 2.3 | 320 | + 1.3 |
| Residual Fuel Oil, Domestic Demand | 522,099 | 549,000 | + 5.2 | 555,000 | + 1.1 |
| (Daily Average) | 1,430 | 1,505 | + 5.2 | 1,516 | + 0.7 |
| Distillate Fuel Oil, Domestic Demand | 526,369 | 575,500 | + 9.3 | 617,000 | + 7.2 |
| (Daily Average) | 1,442 | 1,577 | + 9.3 | 1,686 | + 6.9 |
| **Exports, Total, Crude Oil and Refined Products** | **130,021** | **135,000** | **+ 3.9** | **122,000** | **— 9.7** |
| (Daily Average) | 356 | 370 | + 3.9 | 333 | — 10.0 |
| Crude Oil Exports | 13,564 | 11,500 | — 14.5 | 10,000 | — 13.8 |
| (Daily Average) | 37 | 32 | — 14.5 | 27 | — 15.6 |
| Refined Products Exports | 116,457 | 123,500 | + 6.0 | 112,000 | — 9.3 |
| (Daily Average) | 319 | 338 | + 6.0 | 306 | — 9.5 |
| **Crude Runs to Stills, Total** | **2,539,564** | **2,729,570** | **+ 7.5** | **2,835,000** | **+ 3.9** |
| (Daily Average) | 6,958 | 7,478 | + 7.5 | 7,746 | + 3.6 |
| Domestic Crude Runs to Stills | 2,300,766 | 2,446,422 | + 6.3 | 2,529,000 | + 3.4 |
| (Daily Average) | 6,304 | 6,702 | + 6.3 | 6,910 | + 3.1 |
| Foreign Crude Runs to Stills | 238,798 | 283,148 | + 18.6 | 306,000 | + 8.1 |
| (Daily Average) | 654 | 776 | + 18.6 | 836 | + 7.7 |
| **Crude Oil Production** | **2,316,323** | **2,472,827** | **+ 6.8** | **2,560,000** | **+ 3.5** |
| (Daily Average) | 6,346 | 6,775 | + 6.8 | 6,994 | + 3.2 |
| Value at Wells, $ Thousand | 6,393,051 | 6,849,731 | + 7.1 | 7,116,800 | + 3.9 |
| Average Value, $ Barrel | 2.76 | 2.77 | + 0.4 | 2.78 | + 0.4 |
| **Natural Gas Liquids Production** | **248,137** | **262,237** | **+ 4.8** | **278,693** | **+ 6.0** |
| (Daily Average) | 680 | 718 | + 4.8 | 761 | + 6.0 |
| Average Value at Plants, ¢ per Gallon | 5.4 | 5.4 | ..... | ..... | ..... |
| **Imports, Total, Crude Oil and Refined Products** | **383,909** | **454,000** | **+ 17.2** | **487,000** | **+ 7.3** |
| (Daily Average) | 1,052 | 1,244 | + 17.2 | 1,331 | + 7.0 |
| Crude Petroleum Imports | 239,479 | 285,000 | + 19.0 | 306,000 | + 7.4 |
| (Daily Average) | 656 | 781 | + 19.0 | 836 | + 6.9 |
| Refined Products Imports | 144,430 | 169,000 | + 17.0 | 181,000 | + 7.1 |
| (Daily Average) | 396 | 463 | + 17.0 | 495 | + 7.1 |

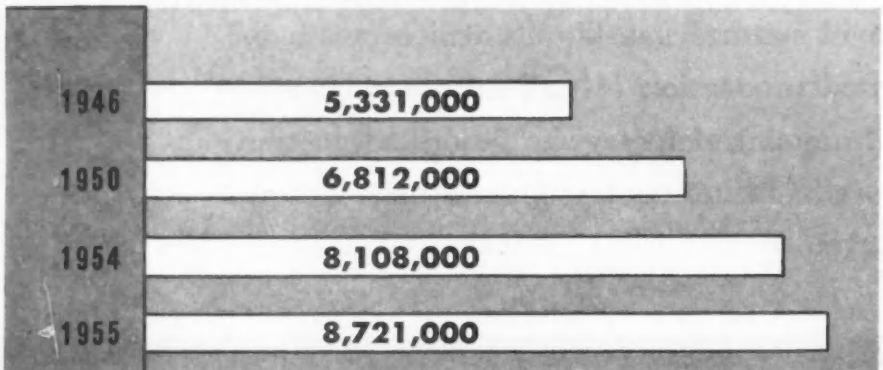
# for 1954 and 1955 and Forecasts for 1956

**Production of natural gas liquids will increase 6.0 percent. Marketed production of natural gas to rise 5.0 percent. Record amount of footage to be drilled, in completing 57,625 wells, including 11,768 wildcats.**

| ITEM | NUMBER, EXCEPT AS NOTED | | | | |
|---|---|---|---|---|---|
| | 1954 | 1955 | % Diff. '54-'55 | 1956 | % Diff. '55-'56 |
| **Nat'l. Gas Marketed Production, Bln. Cu. Ft.** | **8,743** | **9,375** | **+ 7.2** | **9,844** | **+ 5.0** |
| Value at Consumption Points, ¢ per M. Cu. Ft. | 38.0 | 40.4 | + 6.3 | 42.4 | + 5.0 |
| Value at Wells, ¢ per M. Cu. Ft. | 10.1 | 10.7 | + 5.9 | 11.2 | + 4.7 |
| **Stocks, End of Year, All Oils, Thousand Barrels** | **714,933** | **716,428** | **+ 0.2** | **726,428** | **+ 1.4** |
| (Days' Supply) | 88 | 82 | — 6.8 | 80 | — 2.4 |
| Crude Oil Stocks, Thousand Barrels | 258,385 | 262,033 | + 1.4 | 262,033 | ..... |
| (Days' Supply) | 37 | 35 | — 5.4 | 34 | — 2.8 |
| Natural Gas Liquids Stocks, Thousand Bbls. | 14,038 | 16,300 | + 16.1 | 16,300 | ..... |
| Refined Products Stocks, Thousand Barrels | 442,510 | 438,095 | — 1.0 | 448,095 | + 2.3 |
| Gasoline Stocks, Thousand Barrels | 155,400 | 164,859 | + 6.1 | ..... | ..... |
| (Days' Supply) | 46 | 46 | ..... | ..... | ..... |
| Distillate Stocks, Thousand Barrels | 108,144 | 112,792 | + 4.3 | ..... | ..... |
| (Days' Supply) | 75 | 72 | — 4.0 | ..... | ..... |
| Kerosine Stocks, Thousand Barrels | 27,826 | 27,437 | — 1.4 | ..... | ..... |
| Residual Stocks, Thousand Barrels | 52,105 | 39,872 | — 23.5 | ..... | ..... |
| **New Fields Discovered, Total** | **1,434** | **1,425** | **— 0.6** | ..... | ..... |
| New Oil Fields Discovered | 1,056 | 1,070 | + 1.3 | ..... | ..... |
| New Distillate Fields Discovered | 118 | 123 | + 4.2 | ..... | ..... |
| New Gas Fields Discovered | 260 | 232 | — 10.8 | ..... | ..... |
| **Wildcats Drilled** | **10,821** | **11,480** | **+ 6.1** | **11,768** | **+ 2.5** |
| Productive Wildcats Drilled | 1,434 | 1,425 | — 0.6 | ..... | ..... |
| Non-Productive Wildcats Drilled | 9,387 | 10,055 | + 7.1 | ..... | ..... |
| **Well Completions, Total** | **52,695** | **56,343** | **+ 6.9** | ..... | ..... |
| **New Wells Completed, Total** | **52,197** | **55,819** | **+ 6.9** | **57,625** | **+ 3.2** |
| Oil Wells | 28,063 | 30,432 | + 8.4 | ..... | ..... |
| Distillate Wells | 672 | 706 | + 5.1 | ..... | ..... |
| Gas Wells | 3,547 | 3,560 | + 0.4 | ..... | ..... |
| Dry Holes | 19,137 | 20,452 | + 6.9 | ..... | ..... |
| Input and Disposal Wells | 778 | 669 | — 14.0 | ..... | ..... |
| **Old Wells Drilled Deeper** | **498** | **524** | **+ 5.2** | ..... | ..... |
| **Footage Drilled, Total Wells, Thousand Feet** | **211,740** | **228,175** | **+ 7.8** | ..... | ..... |
| **Footage Drilled New Wells, Thousand Feet** | **211,296** | **227,479** | **+ 7.7** | **238,049** | **+ 4.6** |
| Development Footage, Thousand Feet | 161,161 | 172,249 | + 6.9 | ..... | ..... |
| Wildcat Footage, Thousand Feet | 50,135 | 55,230 | + 10.2 | ..... | ..... |
| **Footage Drilled, Old Wells, Thousand Feet** | **444** | **696** | **+ 56.8** | ..... | ..... |
| **Wells Drilling, End of Year** | **4,680** | **4,987** | **+ 6.6** | ..... | ..... |
| Wells Drilling During Year, Average | 4,635 | 4,867 | + 5.0 | ..... | ..... |
| **Producing Oil Wells, End of Year** | **514,808** | **537,682** | **+ 4.4** | ..... | ..... |
| On Artificial Lift | 452,652 | 472,318 | + 4.3 | ..... | ..... |
| Flowing Oil Wells | 62,156 | 65,364 | + 5.2 | ..... | ..... |
| **Producing Gas and Condensate Wells, Yr. End** | **72,195** | **73,802** | **+ 2.2** | ..... | ..... |
| Gas Wells | 66,795 | 68,582 | + 2.7 | ..... | ..... |
| Condensate Wells | 5,400 | 5,220 | — 3.3 | ..... | ..... |

**TOTAL DEMAND FOR ALL U. S. OILS CONTINUES ITS SPECTACULAR GROWTH**

*(Domestic and Export Demand—Barrels Per Day)*




# U. S. Supply and Demand . . .

## Greater demand for oils will require more production of crude and natural gasoline despite higher imports.

**By L. J. LOGAN,** World Oil Staff

The U. S. oil industry in 1956 will boost operations moderately above 1955 levels. It must provide more supplies to meet larger demand for petroleum products. Refinery runs will need to be stepped up. More production of natural gasoline will be absorbed. Higher crude production will find markets.

Besides meeting current demand, the industry will want to increase stocks of refined products moderately. Somewhat larger inventories of oils will be needed in supplying customers.

Increases in domestic production of crude and natural gasoline will be required even though some further stepping up of imports is expected.

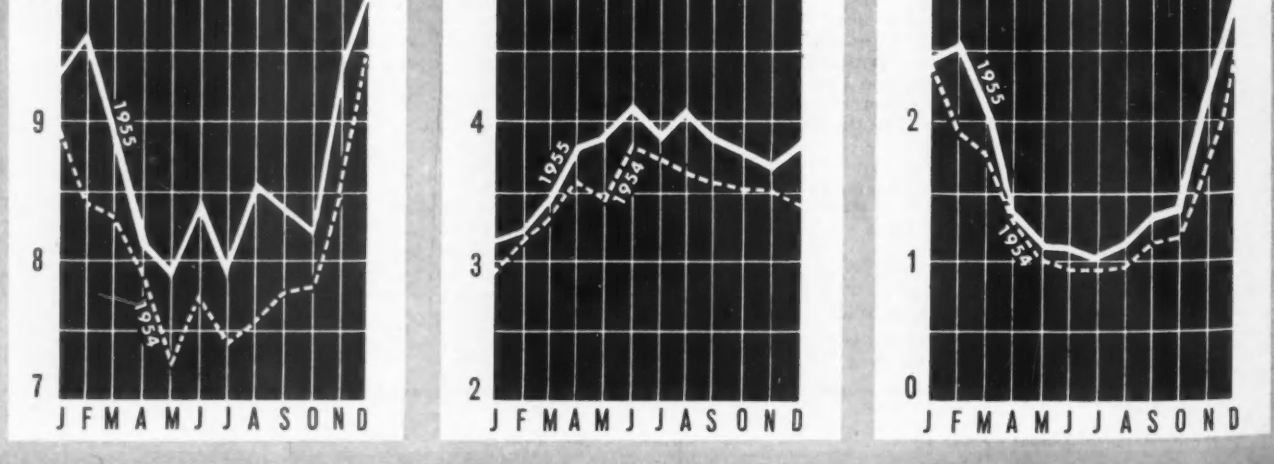
Total demand for all oils in 1956 will average 9,060,000 barrels daily, an increase of 339,000 barrels or 3.9 percent over 1955, the U. S. Bureau of Mines has forecast. In addition, the bureau predicted that stocks of refined products would be increased 10 million barrels or an average of 27,000 barrels.

**More Supply Needed.** Total new supply required in 1956 to meet current demand and increase product stocks was computed at 9,087,000 barrels daily. That is an increase of 349,000 barrels daily or 4.0 percent over the new supply consumed and added to storage in 1955.

Of the additional new supply of 349,000 barrels daily to be absorbed in 1956, domestic production will provide 262,000 barrels daily or 75 percent and imports will provide 87,000 barrels daily or 25 percent, the bureau forecast indicates. Domestic production of crude will be boosted 219,000 barrels daily or 3.2 percent, to 6,994,000 barrels per day in 1956. U. S. production of natural gasoline and allied products will be increased 43,000 barrels daily or 6.0 percent, to 762,000 barrels a day in 1956.

**U. S. OIL DEMAND FLUCTUATES GREATLY BY SEASONS**

*(Domestic and Export Demand—Millions of Barrels, by months)*



Total imports will increase 87,000 barrels a day or 7.3 percent to a new peak of 1,331,000 barrels per day in 1956, according to the forecast. Crude oil imports are forecast at 836,000 barrels daily, an increase of 55,000 barrels or 6.9 percent. Imports of refined products are estimated at 495,000 barrels daily, up 32,000 barrels or 7.1 percent.

**Domestic Use High.** While total demand is due to rise 3.9 percent in 1956, domestic consumption will show a better gain of 4.5 percent or 376,000 barrels daily. That rise will be offset partly by a decline of 37,000 barrels daily or 10 percent in exports. Crude exports will average only 27,000 barrels daily, compared with 32,000 a day last year. Exports of refined products are estimated at 306,000 barrels daily, a drop of 32,000 barrels or 9.5 percent.

Domestic consumption will average 8,727,000 barrels daily in 1956. The indicated increase of 376,000 barrels daily or 4.5 percent over 1955 would be a normal gain. It would be considerably less than the extraordinary increase of 7.7 percent in 1955 over 1954. The rise in consumption would be in line with the moderate further gain expected in U. S. business in general in 1956. The exceptional increase in oil use in 1955 likewise reflected general business conditions, which were booming during the year.

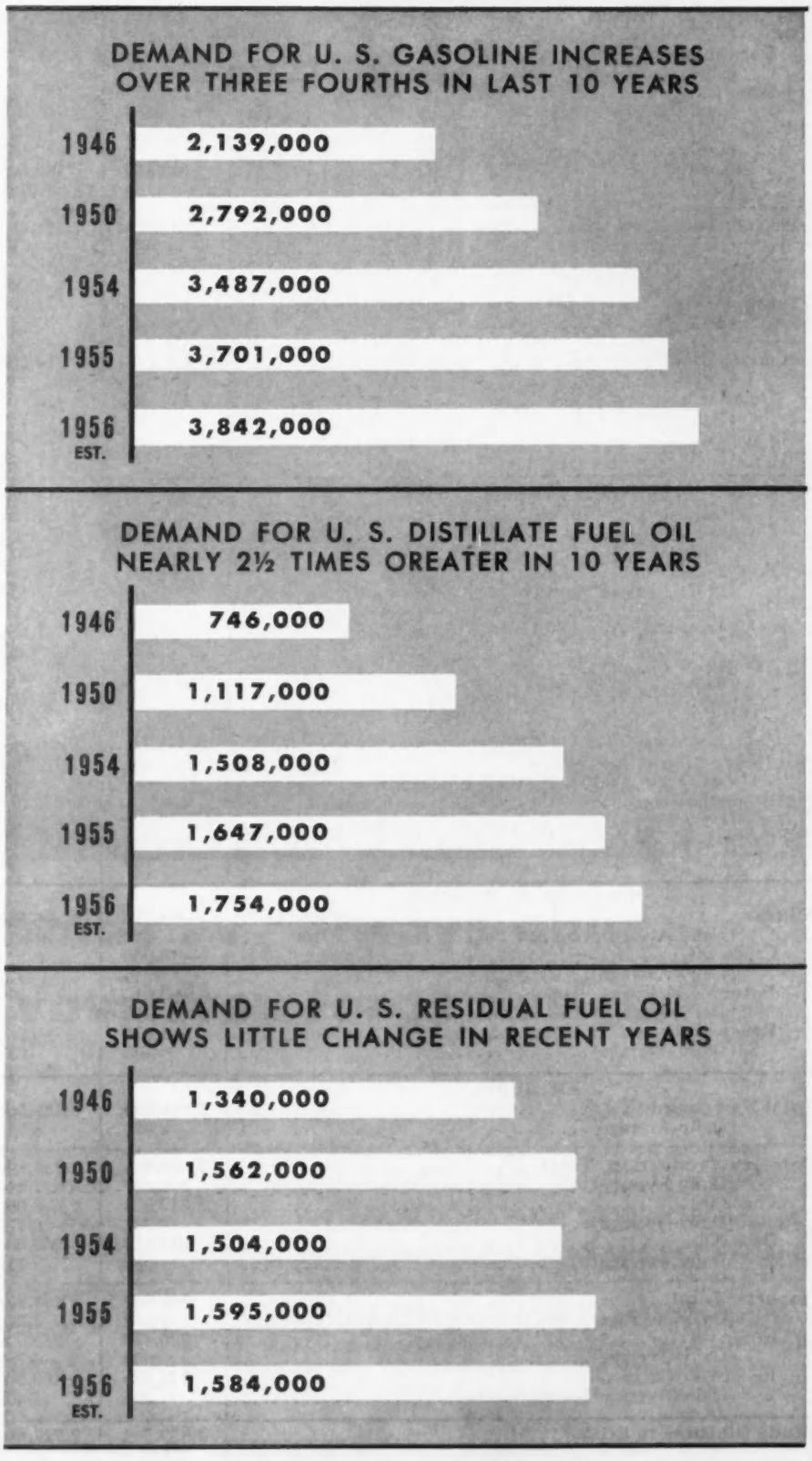
**Gain for Gasoline.** Prospective demand for gasoline will be in line with the over-all trend of petroleum demand. A further increase is indicated, although smaller than that of 1955. Total demand for gasoline in 1956 is estimated at 3,842,000 barrels daily, an increase of 141,000 barrels or 3.8 percent over 1955.

The demand for gasoline increased 214,000 barrels daily or 6.1 percent in 1955. That sharp rise reflected record breaking registrations of automobiles and trucks and increased use of buses, tractors and other gasoline driven units.

Only a nominal increase in total demand for kerosine is foreseen for 1956, following a moderate decrease in 1955. Total demand in 1956 is estimated at 328,000 barrels daily, an increase of 2000 barrels or 0.6 percent over 1955. The 1955 average of 326,000 barrels daily was 11,000 barrels or 3.4 percent under 1954.

Distillate fuel oil demand continues strong. Total demand in 1956 is fore-

## GASOLINE AND DISTILLATE FUEL LEAD GROWTH IN DEMAND FOR U. S. OIL PRODUCTS


DEMAND FOR U. S. GASOLINE INCREASES OVER THREE FOURTHS IN LAST 10 YEARS
1946 2,139,000
1950 2,792,000
1954 3,487,000
1955 3,701,000
1956 EST. 3,842,000
DEMAND FOR U. S. DISTILLATE FUEL OIL NEARLY 2½ TIMES OREATER IN 10 YEARS
1946 746,000
1950 1,117,000
1954 1,508,000
1955 1,647,000
1956 EST. 1,754,000
DEMAND FOR U. S. RESIDUAL FUEL OIL SHOWS LITTLE CHANGE IN RECENT YEARS
1946 1,340,000
1950 1,562,000
1954 1,504,000
1955 1,595,000
1956 EST. 1,584,000

BARRELS PER DAY

Figures include domestic and export demand supplies by U. S. production and imports.

## Forecast of Petroleum Demand and Supply in 1956, Compared with 1955 and 1954

All Data from U. S. Bureau of Mines.

THOUSANDS OF BARRELS

| ITEM | 1954 Actual | 1955 Estimate | % Diff. '54-'55 | 1956 Forecast | % Diff. '55-'56 |
|---|---|---|---|---|---|
| **DEMAND** | | | | | |
| **All Oils, Total Demand** | **2,959,449** | **3,183,000** | **+ 7.6** | **3,316,000** | **+ 4.2** |
| (Daily Average) | 8,108 | 8,721 | + 7.6 | **9,060** | + 3.9 |
| Domestic Demand | 2,829,428 | 3,048,000 | + 7.7 | **3,194,000** | + 4.8 |
| (Daily Average) | 7,752 | 8,351 | + 7.7 | **8,727** | + 4.5 |
| Exports, Total | 130,021 | 135,000 | + 3.9 | **122,000** | — 9.7 |
| (Daily Average) | 356 | 370 | + 3.9 | **333** | — 10.0 |
| Crude Exports | 13,564 | 11,500 | — 14.5 | **10,000** | — 13.8 |
| (Daily Average) | 37 | 32 | — 14.5 | **27** | — 15.6 |
| Refined Exports | 116,457 | 123,500 | + 6.0 | **112,000** | — 9.3 |
| (Daily Average) | 319 | 338 | + 6.0 | **306** | — 9.5 |
| **Gasoline, Total Demand** | **1,272,809** | **1,351,000** | **+ 6.1** | **1,406,000** | **+ 4.1** |
| (Daily Average) | 3,487 | 3,701 | + 6.1 | **3,842** | + 3.8 |
| Domestic Demand | 1,238,346 | 1,316,000 | + 6.2 | **1,374,000** | + 4.5 |
| (Daily Average) | 3,393 | 3,605 | + 6.2 | **3,754** | + 4.1 |
| Exports | 34,463 | 35,000 | + 4.5 | **32,000** | — 11.1 |
| (Daily Average) | 94 | 96 | + 4.5 | **88** | — 8.3 |
| **Kerosine, Total Demand** | **123,163** | **119,000** | **— 3.4** | **120,000** | **+ 0.8** |
| (Daily Average) | 337 | 326 | — 3.4 | **328** | + 0.6 |
| Domestic Demand | 118,260 | 115,500 | — 2.3 | **117,000** | + 1.3 |
| (Daily Average) | 324 | 316 | — 2.3 | **320** | + 1.3 |
| Exports | 4,903 | 3,500 | — 28.6 | **3,000** | — 14.3 |
| (Daily Average) | 13 | 10 | — 28.6 | **8** | — 20.0 |
| **Distillate Fuel Oil, Total Demand** | **550,570** | **601,000** | **+ 9.2** | **642,000** | **+ 6.8** |
| (Daily Average) | 1,508 | 1,647 | + 9.2 | **1,754** | + 6.5 |
| Domestic Demand | 526,369 | 575,500 | + 9.3 | **617,000** | + 7.2 |
| (Daily Average) | 1,442 | 1,577 | + 9.3 | **1,686** | + 6.9 |
| Exports | 24,201 | 25,500 | + 5.4 | **25,000** | — 2.0 |
| (Daily Average) | 66 | 70 | + 5.4 | **68** | — 2.9 |
| **Residual Fuel Oil, Total Demand** | **548,955** | **582,000** | + 6.0 | **580,000** | — 0.4 |
| (Daily Average) | 1,504 | 1,595 | + 6.0 | **1,584** | — 0.7 |
| Domestic Demand | 522,099 | 549,000 | + 5.2 | **555,000** | + 1.1 |
| (Daily Average) | 1,430 | 1,505 | + 5.2 | **1,516** | + 0.7 |
| Exports | 26,856 | 33,000 | + 22.9 | **25,000** | — 24.3 |
| (Daily Average) | 74 | 90 | + 22.9 | **68** | — 24.5 |
| ***All Other Oils, Total Demand** | **463,952** | **530,000** | **+ 14.2** | **568,000** | **+ 7.2** |
| (Daily Average) | 1,272 | 1,452 | + 14.2 | **1,552** | + 6.9 |
| Domestic Demand | 424,354 | 492,000 | + 15.9 | **531,000** | + 7.9 |
| (Daily Average) | 1,163 | 1,348 | + 15.9 | **1,451** | + 7.6 |
| Exports | 39,598 | 38,000 | — 4.0 | **37,000** | — 2.6 |
| (Daily Average) | 109 | 104 | — 4.0 | **101** | — 2.9 |
| **CHANGE IN STOCKS** | | | | | |
| **All Oils** | **—10,574** | **+6,500** | ..... | **+10,000** | **+ 53.8** |
| (Daily Average) | —29 | +17 | ..... | **+27** | + 58.8 |
| Crude Oil | —16,060 | ..... | ..... | ..... | ..... |
| (Daily Average) | —44 | ..... | ..... | ..... | ..... |
| Natural Gasoline | +3,610 | ..... | ..... | ..... | ..... |
| (Daily Average) | +10 | ..... | ..... | ..... | ..... |
| Refined Products | +1,876 | +6,500 | ..... | **+10,000** | + 53.8 |
| (Daily Average) | +5 | +17 | ..... | **+27** | + 58.8 |
| **NEW SUPPLY** | | | | | |
| **Total New Supply** | **2,948,875** | **3,189,500** | **+ 8.2** | **3,326,000** | **+ 4.3** |
| (Daily Average) | 8,079 | 8,738 | + 8.2 | **9,087** | + 4.0 |
| **Domestic Production, Total** | **2,564,966** | **2,735,500** | **+ 6.6** | **2,839,000** | **+ 3.8** |
| (Daily Average) | 7,027 | 7,494 | + 6.6 | **7,756** | + 3.5 |
| Crude Oil | 2,316,323 | 2,473,000 | + 6.8 | **2,560,000** | + 3.5 |
| (Daily Average) | 6,346 | 6,775 | + 6.8 | **6,994** | + 3.2 |
| Other Oils | 248,643 | 262,500 | + 5.6 | **279,000** | + 6.3 |
| (Daily Average) | 681 | 719 | + 5.6 | **762** | + 6.0 |
| **Imports, Total** | **383,909** | **454,000** | **+ 17.2** | **487,000** | **+ 7.3** |
| (Daily Average) | 1,052 | 1,244 | + 17.2 | **1,331** | + 7.0 |
| Crude Oil | 239,479 | 285,000 | + 19.0 | **306,000** | + 7.4 |
| (Daily Average) | 656 | 781 | + 19.0 | **836** | + 6.9 |
| Refined Products | 144,430 | 169,000 | + 17.0 | **181,000** | + 7.1 |
| (Daily Average) | 396 | 463 | + 17.0 | **495** | + 7.1 |
| **Crude Oil Runs to Stills, Total** | **2,539,564** | **2,727,000** | **+ 7.4** | **2,835,000** | **+ 4.0** |
| (Daily Average) | 6,958 | 7,471 | + 7.4 | **7,746** | + 3.7 |

* Includes crude oil used as fuel and lost in handling, liquefied gases, petroleum coke, asphalt, road oil, etc., and refinery losses.

# Always ready . . . always able to handle your drop forge designs

Bethlehem's drop forge shops are ready for you—always!

You can depend upon us for volume production. Even more important, you have the assurance of expert workmanship. Unless you have been through the Bethlehem shops, it is hard to visualize their full extent and the care with which each step in an order is handled.

Bethlehem produces an almost endless variety of designs for the oil, mining, aviation, automotive, electrical, and other industries. This is made possible by strictly first-class facilities, which include a modern die-sinking plant, steam and board drop hammers to 8,000 lb, mechanical presses to 3,000 tons, upsetters to 9 in., and full heat-treating equipment.

We're anxious to do business with you. Why not call us when you are next in the market for closed-die forgings? You'll find our prices and deliveries are fully competitive.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

**BETHLEHEM STEEL**

BETHLEHEM STEEL

cast at 1,754,000 barrels daily, an increase of 107,000 barrels or 6.5 percent over 1955. The demand amounted to 1,647,000 barrels per day in 1955, having risen 139,000 barrels or 9.2 percent over 1954.

Total demand for residual fuel oil is forecast at 1,584,000 barrels daily in 1956, a decrease of 11,000 barrels or 0.7 percent. In 1955 the demand averaged 1,595,000 barrels per day, an increase of 91,000 barrels or 6.0 percent over 1954.

### Demand for Distillate Fuel, by Years

**Total, domestic, and export demand supplied by U. S. petroleum industry.**

(Source: U. S. Bureau of Mines.)

THOUSANDS OF BARRELS

| Year | Total Demand | | Domestic | | Exports | |
|---|---|---|---|---|---|---|
| | Annual | Daily | Total | Daily | Total | Daily |
| 1932 | 73,883 | 202 | 65,101 | 178 | 8,782 | 24 |
| 1933 | 76,172 | 209 | 64,748 | 177 | 11,424 | 31 |
| 1934 | 89,330 | 245 | 74,824 | 205 | 14,506 | 40 |
| 1935 | 102,277 | 280 | 86,028 | 236 | 16,249 | 44 |
| 1936 | 123,205 | 337 | 102,757 | 281 | 20,448 | 56 |
| 1937 | 146,970 | 403 | 116,841 | 320 | 30,129 | 82 |
| 1938 | 147,090 | 403 | 117,449 | 322 | 29,641 | 81 |
| 1939 | 166,993 | 457 | 134,973 | 370 | 32,020 | 88 |
| 1940 | 179,991 | 492 | 160,851 | 439 | 19,140 | 52 |
| 1941 | 189,749 | 520 | 172,824 | 473 | 16,925 | 46 |
| 1942 | 207,236 | 568 | 185,661 | 509 | 21,575 | 59 |
| 1943 | 233,067 | 639 | 208,110 | 570 | 24,957 | 68 |
| 1944 | 252,811 | 691 | 209,320 | 572 | 43,491 | 119 |
| 1945 | 259,580 | 711 | 226,084 | 619 | 33,496 | 92 |
| 1946 | 272,381 | 746 | 242,894 | 665 | 29,487 | 81 |
| 1947 | 328,150 | 899 | 298,273 | 817 | 29,877 | 82 |
| 1948 | 361,869 | 989 | 340,576 | 930 | 21,293 | 58 |
| 1949 | 341,573 | 936 | 329,278 | 902 | 12,295 | 34 |
| 1950 | 407,538 | 1,117 | 394,885 | 1,082 | 12,653 | 35 |
| 1951 | 471,657 | 1,292 | 449,102 | 1,230 | 22,555 | 62 |
| 1952 | 512,862 | 1,405 | 479,347 | 1,310 | 33,515 | 92 |
| 1953 | 520,403 | 1,426 | 488,075 | 1,337 | 32,328 | 89 |
| 1954 | 550,570 | 1,508 | 526,369 | 1,442 | 24,201 | 66 |
| 1955 | 601,000 | 1,647 | 575,500 | 1,577 | 25,500 | 70 |
| 1956 Est. | 642,000 | 1,754 | 617,000 | 1,686 | 25,000 | 68 |

### Demand for Residual Fuel Oil, by Years

**Total, domestic, and export demand supplied by U. S. petroleum industry.**

(Source: U. S. Bureau of Mines.)

THOUSANDS OF BARRELS

| Year | Total Demand | | Domestic | | Exports | |
|---|---|---|---|---|---|---|
| | Annual | Daily | Total | Daily | Total | Daily |
| 1932 | 250,268 | 684 | 239,056 | 653 | 11,212 | 31 |
| 1933 | 268,096 | 734 | 258,957 | 709 | 9,139 | 25 |
| 1934 | 279,646 | 766 | 265,547 | 727 | 14,099 | 39 |
| 1935 | 293,394 | 804 | 280,695 | 769 | 12,699 | 35 |
| 1936 | 322,319 | 881 | 307,884 | 841 | 14,435 | 39 |
| 1937 | 340,818 | 934 | 325,514 | 892 | 15,304 | 42 |
| 1938 | 309,753 | 849 | 291,833 | 799 | 17,920 | 49 |
| 1939 | 340,973 | 934 | 323,488 | 886 | 17,485 | 48 |
| 1940 | 356,272 | 973 | 340,163 | 929 | 16,109 | 44 |
| 1941 | 397,536 | 1,089 | 383,422 | 1,050 | 14,114 | 39 |
| 1942 | 417,792 | 1,145 | 405,697 | 1,111 | 12,095 | 33 |
| 1943 | 481,902 | 1,320 | 467,008 | 1,279 | 14,894 | 41 |
| 1944 | 524,556 | 1,433 | 512,020 | 1,399 | 12,536 | 34 |
| 1935 | 535,092 | 1,466 | 523,423 | 1,434 | 11,669 | 32 |
| 1946 | 489,217 | 1,340 | 480,029 | 1,315 | 9,188 | 25 |
| 1947 | 529,133 | 1,450 | 518,510 | 1,421 | 10,623 | 29 |
| 1948 | 513,554 | 1,403 | 500,543 | 1,368 | 13,011 | 35 |
| 1949 | 508,662 | 1,394 | 496,021 | 1,359 | 12,641 | 35 |
| 1950 | 570,021 | 1,562 | 553,793 | 1,517 | 16,228 | 44 |
| 1951 | 593,320 | 1,625 | 564,321 | 1,546 | 28,999 | 79 |
| 1952 | 582,866 | 1,593 | 555,165 | 1,517 | 27,701 | 76 |
| 1953 | 586,465 | 1,607 | 560,474 | 1,536 | 25,991 | 71 |
| 1954 | 548,955 | 1,504 | 522,099 | 1,430 | 26,856 | 74 |
| 1955 | 582,000 | 1,595 | 549,000 | 1,505 | 33,000 | 90 |
| 1956 Est. | 580,000 | 1,584 | 555,000 | 1,516 | 25,000 | 68 |

### U. S. Petroleum Supply and Demand

(Source: U. S. Bureau of Mines.)

THOUSANDS OF BARRELS DAILY

| YEAR | SUPPLY | | | Change in Stocks All Oils[3] | DEMAND | | |
|---|---|---|---|---|---|---|---|
| | U.S. Prod. All Oils[1] | Total Imports[2] | Total New Supply | | Domestic Demand[4] | Exports and Shipments[5] | Total Demand |
| 1936 | 3,128 | 156 | 3,284 | — 62 | 2,986 | 360 | 3,346 |
| 1937 | 3,637 | 157 | 3,804 | +126 | 3,205 | 473 | 3,678 |
| 1938 | 3,472 | 149 | 3,621 | — 25 | 3,115 | 531 | 3,646 |
| 1939 | 3,614 | 162 | 3,776 | —115 | 3,373 | 518 | 3,891 |
| 1940 | 3,858 | 229 | 4,087 | +106 | 3,625 | 356 | 3,981 |
| 1941 | 4,073 | 266 | 4,339 | — 30 | 4,071 | 298 | 4,369 |
| 1942 | 4,034 | 99 | 4,133 | —160 | 3,972 | 321 | 4,293 |
| 1943 | 4,372 | 174 | 4,546 | — 33 | 4,168 | 411 | 4,579 |
| 1944 | 4,864 | 252 | 5,116 | — 17 | 4,562 | 571 | 5,133 |
| 1945 | 5,010 | 311 | 5,321 | — 37 | 4,857 | 501 | 5,358 |
| 1946 | 5,073 | 377 | 5,450 | +119 | 4,912 | 419 | 5,331 |
| 1947 | 5,451 | 437 | 5,888 | — 14 | 5,451 | 451 | 5,902 |
| 1948 | 5,921 | 514 | 6,435 | +292 | 5,775 | 368 | 6,143 |
| 1949 | 5,477 | 645 | 6.122 | — 8 | 5,803 | 327 | 6,130 |
| 1950 | 5,906 | 850 | 6,756 | — 55 | 6,507 | 304 | 6,811 |
| 1951 | 6,720 | 844 | 7,564 | + 89 | 7,053 | 422 | 7,475 |
| 1952 | 6,868 | 952 | 7,820 | +108 | 7,280 | 432 | 7,712 |
| 1953 | 7,113 | 1,034 | 8,147 | +142 | 7,604 | 401 | 8,005 |
| 1954 | 7,027 | 1,052 | 8,079 | — 29 | 7,752 | 356 | 8,108 |
| 1955 | 7,494 | 1,244 | 8,738 | + 17 | 8,351 | 370 | 8,721 |
| 1956 Est. | 7,756 | 1,331 | 9,087 | + 27 | 8,727 | 333 | 9,060 |

[1] Includes crude oil, natural gasoline, related products, and benzol. [2] Includes both refined and crude oil. [3] Includes changes in both refined and crude oil stocks. Minus signs indicate decreases and plus signs increases. [4] Includes military and civilian demand in continental United States and shipments to U.S. armed forces abroad. [5] Includes shipments to non-contiguous territories.

### Demand for All Oils and Gasoline, by Years

**Total, domestic, and export demand supplied by U. S. petroleum industry.**

(Source: U. S. Bureau of Mines.)

THOUSANDS OF BARRELS

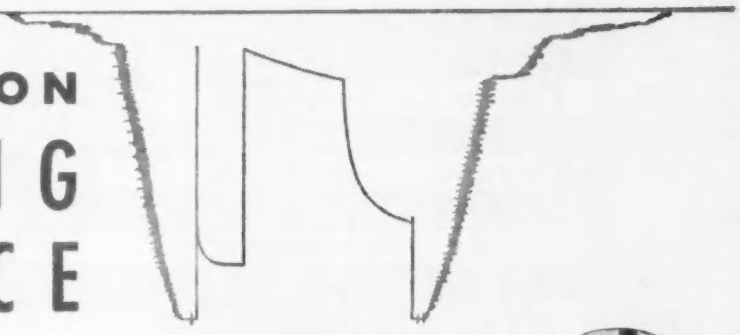
ALL OILS

| Year | Total Demand | | Domestic | | Exports | |
|---|---|---|---|---|---|---|
| | Annual | Daily | Total | Daily | Total | Daily |
| 1918 | | | | | | |
| 1919 | 438,434 | 1,201 | 374,541 | 1,026 | 63,893 | 175 |
| 1920 | 535,382 | 1,463 | 456,764 | 1,245 | 79,618 | 217 |
| 1921 | 592,402 | 1,450 | 457,521 | 1,253 | 71,881 | 197 |
| 1922 | 605,540 | 1,659 | 530,990 | 1,455 | 74,550 | 204 |
| 1923 | 754,361 | 2,067 | 652,027 | 1,786 | 102,334 | 280 |
| 1924 | 805,070 | 2,120 | 687,742 | 1,879 | 117,328 | 321 |
| 1925 | 840,818 | 2,304 | 726,797 | 1,991 | 114,021 | 312 |
| 1926 | 912,893 | 2,501 | 780,487 | 2,138 | 132,406 | 363 |
| 1927 | 944,762 | 2,588 | 802,499 | 2,199 | 142,263 | 390 |
| 1928 | 1,014,716 | 2,772 | 859,759 | 2,349 | 154,957 | 423 |
| 1929 | 1,103,203 | 3,022 | 940,083 | 2,576 | 163,120 | 447 |
| 1930 | 1,083,511 | 2,968 | 927,016 | 2,540 | 156,495 | 429 |
| 1931 | 1,027,274 | 2,814 | 902,920 | 2,474 | 124,354 | 341 |
| 1932 | 938,757 | 2,565 | 835,482 | 2,283 | 103,275 | 282 |
| 1933 | 975,214 | 2,672 | 868,487 | 2,379 | 106,727 | 292 |
| 1934 | 1,034,672 | 2,835 | 920,165 | 2,521 | 114,507 | 314 |
| 1935 | 1,112,672 | 3,048 | 983,685 | 2,695 | 128,987 | 353 |
| 1936 | 1,224,748 | 3,346 | 1,092,754 | 2,986 | 131,994 | 361 |
| 1937 | 1,342,516 | 3,678 | 1,169,682 | 3,205 | 172,834 | 473 |
| 1938 | 1,330,850 | 3,646 | 1,137,122 | 3,115 | 193,728 | 531 |
| 1939 | 1,420,035 | 3,890 | 1,231,067 | 3,373 | 188,959 | 518 |
| 1940 | 1,457,086 | 3,981 | 1,326,620 | 3,625 | 130,466 | 356 |
| 1941 | 1,594,609 | 4,369 | 1,485,779 | 4,071 | 108,830 | 298 |
| 1942 | 1,566,815 | 4,293 | 1,449,908 | 3,972 | 116,907 | 320 |
| 1943 | 1,671,383 | 4,579 | 1,521,426 | 4,168 | 149,957 | 411 |
| 1944 | 1,878,879 | 5,134 | 1,671,263 | 4,566 | 207,616 | 567 |
| 1945 | 1,955,668 | 5,358 | 1,772,685 | 4,857 | 182,983 | 501 |
| 1946 | 1,945,909 | 5,331 | 1,792,786 | 4,912 | 153,123 | 419 |
| 1947 | 2,154,280 | 5,902 | 1,989,803 | 5,451 | 164,477 | 451 |
| 1948 | 2,218,352 | 6,143 | 2,113,678 | 5,775 | 134,674 | 368 |
| 1949 | 2,237,626 | 6,130 | 2,118,250 | 5,803 | 119,376 | 327 |
| 1950 | 2,486,363 | 6,812 | 2,375,057 | 6,507 | 111,306 | 305 |
| 1951 | 2,728,465 | 7,475 | 2,574,413 | 7,053 | 154,052 | 422 |
| 1952 | 2,822,595 | 7,712 | 2,664,407 | 7,280 | 158,188 | 432 |
| 1953 | 2,921,912 | 8,005 | 2,775,321 | 7,604 | 146,591 | 401 |
| 1954 | 2,959,449 | 8,108 | 2,829,428 | 7,752 | 130,021 | 356 |
| 1955 | 3,183,000 | 8,721 | 3,048,000 | 8,351 | 135,000 | 370 |
| 1956 Est. | 3,316,000 | 9,060 | 3,194,000 | 8,727 | 122,000 | 333 |

GASOLINE

| Year | Total Demand | | Domestic | | Exports | |
|---|---|---|---|---|---|---|
| | Annual | Daily | Total | Daily | Total | Daily |
| 1918 | 93,599 | 256 | 79,949 | 219 | 13,650 | 37 |
| 1919 | 97,790 | 268 | 88,648 | 243 | 9,142 | 25 |
| 1920 | 124,623 | 340 | 108,945 | 298 | 15,678 | 43 |
| 1921 | 130,203 | 357 | 116,840 | 320 | 13,363 | 37 |
| 1922 | 152,132 | 417 | 137,770 | 377 | 14,362 | 39 |
| 1923 | 195,556 | 536 | 174,462 | 478 | 21,094 | 58 |
| 1924 | 225,737 | 617 | 196,586 | 537 | 29,151 | 80 |
| 1925 | 264,429 | 724 | 232,745 | 638 | 31,684 | 87 |
| 1926 | 311,897 | 854 | 268,128 | 735 | 43,769 | 120 |
| 1927 | 350,318 | 960 | 305,367 | 837 | 44,951 | 123 |
| 1928 | 392,293 | 1,072 | 388,881 | 926 | 53,412 | 146 |
| 1929 | 444,937 | 1,219 | 328,878 | 1,049 | 62,059 | 170 |
| 1930 | 463,184 | 1,269 | 397,609 | 1,089 | 65,575 | 180 |
| 1931 | 453,559 | 1,243 | 407,843 | 1,117 | 45,716 | 125 |
| 1932 | 413,229 | 1,129 | 377,791 | 1,032 | 35,438 | 97 |
| 1933 | 409,815 | 1,123 | 380,494 | 1,042 | 29,321 | 80 |
| 1934 | 435,025 | 1,192 | 410,339 | 1,124 | 24,686 | 68 |
| 1935 | 465,423 | 1,275 | 434,810 | 1,191 | 30,613 | 84 |
| 1936 | 510,252 | 1,394 | 481,606 | 1,316 | 28,646 | 78 |
| 1937 | 557,658 | 1,528 | 519,352 | 1,423 | 38,306 | 105 |
| 1938 | 573,112 | 1,570 | 523,003 | 1,433 | 50,109 | 137 |
| 1939 | 600,147 | 1,644 | 555,509 | 1,522 | 44,638 | 122 |
| 1940 | 614,867 | 1,680 | 589,490 | 1,611 | 25,377 | 69 |
| 1941 | 694,588 | 1,903 | 667,505 | 1,829 | 27,083 | 74 |
| 1942 | 624,207 | 1,710 | 589,110 | 1,614 | 35,097 | 96 |
| 1943 | 619,815 | 1,698 | 568,238 | 1,557 | 51,577 | 141 |
| 1944 | 733,019 | 2,003 | 632,482 | 1,728 | 100.537 | 275 |
| 1945 | 784,392 | 2,149 | 696,333 | 1,908 | 88,059 | 241 |
| 1946 | 780,751 | 2,139 | 735,417 | 2,015 | 45,334 | 124 |
| 1947 | 842,464 | 2,308 | 795,015 | 2,178 | 47,449 | 130 |
| 1948 | 908,572 | 2,482 | 871,270 | 2,380 | 37,302 | 102 |
| 1949 | 953,060 | 2,611 | 913,713 | 2,503 | 39,347 | 108 |
| 1950 | 1,019,011 | 2,792 | 994,290 | 2,724 | 24,721 | 68 |
| 1951 | 1,132,087 | 3,102 | 1,091,951 | 2,992 | 40,136 | 110 |
| 1952 | 1,193,565 | 3,261 | 1,157,280 | 3,162 | 36,285 | 99 |
| 1953 | 1,243,700 | 3,407 | 1,205,775 | 3,303 | 37,925 | 104 |
| 1954 | 1,272,809 | 3,487 | 1,238,346 | 3,393 | 34,463 | 94 |
| 1955 | 1,351,000 | 3,701 | 1,316,000 | 3,605 | 35,000 | 96 |
| 1956 Est. | 1,406,000 | 3,842 | 1,374,000 | 3,754 | 32,000 | 88 |

# *Dual CIP Improves Reservoir Evaluation*



## HALLIBURTON TESTING SERVICE

### *NEW TECHNIQUE TAKES ADVANTAGE OF BOURDON TUBE GAUGE ACCURACY*

Vital decisions regarding method of completing a well, or whether it should be abandoned, often depend on how accurately the drill stem test answers certain crucial questions...

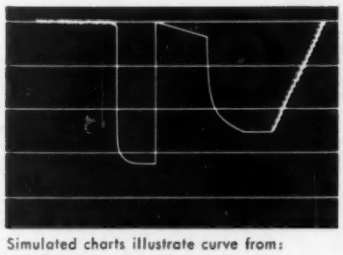
What is the static formation pressure of the tested zone? What is the effective permeability? What is the skin effect or damage factor? What will the production index be?

These questions are answered by Halliburton's Dual CIP (Closed-In-Pressure) testing service, with far higher accuracy and completeness than is offered by normal drill stem tests. The reasons:

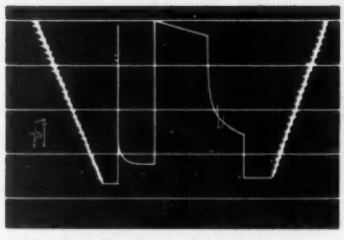
- **A** Halliburton Dual CIP utilizes the Halliburton Bourdon Tube gauge, which gives exceptionally accurate pressure readings.
- **B** An actual measurement of the static formation pressure is more easily attainable during the initial Closed-In-Pressure period before the formation pressure has been disturbed during the flowing test. This measured pressure is more accurate than an extrapolated pressure from the regular build-up curve.
- **C** A Final Closed-In-Pressure buildup curve is obtained for comparison with the Initial curve.
- **D** The pressure curves are expertly analyzed at the Halliburton laboratories and the data are recorded in the proper form for use in reservoir calculations and rushed to the operator as a normal part of Halliburton's Dual Closed-In-Pressure service.

The result is a complete package of all the essential information, with accuracy high enough to justify confidence in making the most important decisions.

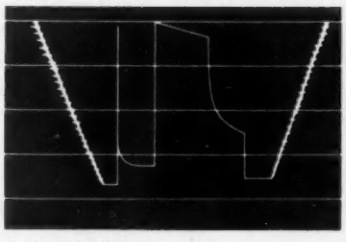
For more accurate, dependable, thorough knowledge made possible by Halliburton Bourdon Tube and Dual CIP technique, phone your local or district office of the Halliburton Oil Well Cementing Company.



Simulated charts illustrate curve from:
1. Gauge in Air Chamber



2. Gauge in Flow Stream Below Tester Valve



3. Blanked-Off Gauge

*ANOTHER IMPORTANT REASON WHY HALLIBURTON'S BEST FOR YOUR DRILL STEM TEST*

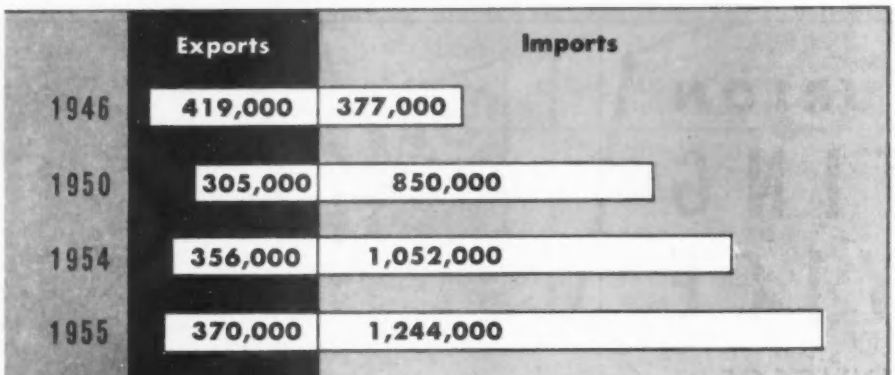
**COMPLETE DATA SENT ON REQUEST**

***Get this valuable information for your Halliburton Service File***

# HALLIBURTON TESTING SERVICE

250 SERVICE CENTERS—JUST MINUTES AWAY FROM ANY RIG

## U. S. OIL IMPORTS NOW FOUR TIMES GREATER THAN EXPORTS




*Barrels Per Day*

# Exports and Imports . . . Excess of

**U. S. imports over exports due to reach new high of about 1 million barrels daily.**

In 1956 the U. S. will push its net imports of petroleum to a new high of approximately 1 million barrels daily. Imports of crude and products are expected to reach 1,331,000 barrels daily, while exports decline to 333,000 barrels a day. Those estimates, made by the Bureau of Mines, indicate net imports of 998,000 barrels daily. Imports exceeded exports by 874,000 barrels daily in 1955 and by 696,000 daily in 1954.

Soon after World War II, the U. S. changed from net exporter to net importer of petroleum. Since 1947, imports have consistently exceeded exports. And in every year except one, the net imports have increased. Each year's net imports have been more than 100,000 barrels per day greater than those of the previous year, on average.

The trend of increasing net imports is due to continue. Even under current government policy of restricting imports in line with domestic crude production, higher net imports are in prospect. Domestic crude output is expanding to meet greater demand, and the increase justifies higher imports. Meanwhile, exports dwindle and are due to stay low.

The estimated total imports of 1,331,000 barrels daily in 1956 would be 87,000 barrels or 7 percent above 1955. The imports of 1955 averaged 1,244,000 barrels daily, up 192,000 barrels or 17.2 percent over 1954. Crude oil imports are estimated at 836,000 barrels daily for 1956, up 55,000 barrels or 6.9 percent. Refined product imports will average 495,000 barrels daily, up 32,000 barrels or 7.1 percent.

Total petroleum exports averaging 333,000 barrels daily in 1956, as forecast, would be 37,000 barrels or 10 percent under 1955. The exports of 1955 averaged 370,000 barrels daily, up 14,000 barrels or 3.9 percent from 1954. Crude oil exports are estimated at 27,000 barrels daily in 1956, down 5,000 barrels or 15.6 percent.

Refined product exports are estimated at 306,000 barrels daily, a decrease of 32,000 barrels or 9.5 percent.

**Imports Issue.** In view of the continuing expansion of imports, independent domestic producers are keeping constant watch on incoming shipments. Their opposition to excessive imports has been made more effective within the past year by action of the federal government. Under the extension of the reciprocal trade agreements, the President has been empowered to impose restrictions on petroleum imports if they exceed their 1954 ratio to domestic crude production. Arthur Fleming, director of the Office of Defense Mobilization, was assigned by President Eisenhower to administer this regulation. He called on oil importers to put into effect voluntary restrictions on their imports. They have been cooperative, and the trends of imports in recent months have appeared reasonable. Since the demand for U. S. crude is high, the

**Excess of U. S. Oil Imports Over Exports, by Years**

(Source: Bureau of Mines.)

(Thousands of Barrels Per Day)

| | IMPORTS | | | EXPORTS | | | NET IMPORTS | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Crude Oil | Products | Total | Crude Oil | Products | Total | Crude Oil | Products | Total |
| 1946.. | 236 | 141 | **377** | 116 | 303 | **419** | 120 | 162* | **42*** |
| 1947.. | 267 | 169 | **437** | 127 | 325 | **451** | 140 | 155* | **14*** |
| 1948.. | 353 | 161 | **514** | 108 | 259 | **367** | 245 | 98* | **147** |
| 1949.. | 421 | 224 | **645** | 91 | 236 | **327** | 330 | 12* | **318** |
| 1950.. | 487 | 363 | **850** | 95 | 210 | **305** | 392 | 153 | **545** |
| 1951.. | 491 | 354 | **844** | 78 | 344 | **422** | 413 | 10 | **422** |
| 1952.. | 573 | 379 | **952** | 73 | 359 | **432** | 500 | 20 | **520** |
| 1953.. | 648 | 386 | **1,034** | 55 | 347 | **402** | 593 | 39 | **632** |
| 1954.. | 656 | 396 | **1,052** | 37 | 319 | **356** | 619 | 77 | **696** |
| 1955.. | 781 | 463 | **1,244** | 32 | 338 | **370** | 749 | 125 | **874** |
| 1956†. | 836 | 495 | **1,331** | 27 | 306 | **333** | 809 | 189 | **998** |

* Net Exports. † Estimate.

advocates of control of imports have been less vociferous in recent months than before.

In fact, there was a bit of a turnabout in January, 1956. Explaining that his suggestion was recommended by the Presidential Advisory Committee on Energy Supplies and Resources Policy, Fleming wrote a letter to importing companies pointing out a generally tight fuel oil supply. Fleming said, "I am requesting oil importing companies to indicate any additional imports of residual fuel oil, beyond those already specifically programmed, which they feel may be required to meet current and prospective demand during the period from now until April 30." In at least one respect, imports had been cut back a little too much.

Actually, the U. S. is not the only country that can, for a short time at least, produce all its quantitative needs of oil and still require imports of specialized refined products. Ecuador, for instance, a small country whose domestic crude production is about one third greater than its consumption, and whose economy is infinitely simpler than that of the U. S., still imports some refined products.

Before World War II the U. S. was a large exporter of crude. But now almost no crude is exported. And where that occurs, it is a matter of proximity to the Mexican or Canadian border and does not amount to much more than a local haul. But the U. S. is a large exporter of aviation gasoline. Current exports of this specialized product average 70,000 barrels daily. Most of it goes to Western Europe.

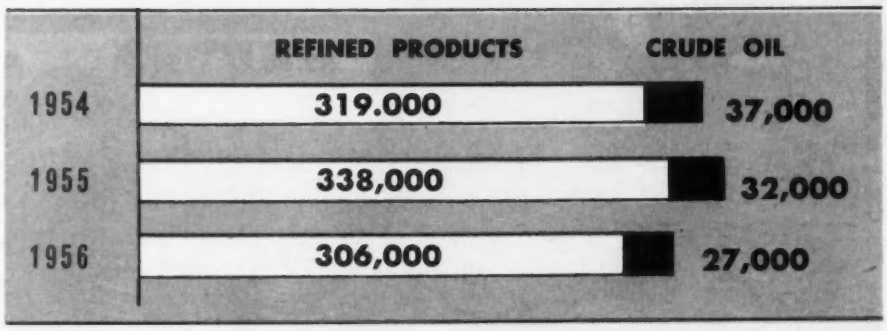
The U. S. is described as a net importer. But it is somewhat fallacious to equate crude imports with product exports and try to balance one off against the other.

The expected higher U. S. imports in the future probably will include increasing amounts of Canadian oil. The ODM's policy has been to try to limit imports of Middle East crude more than those from Canada and Venezuela.

The demand for oil is increasing in foreign areas faster than it is in the U. S. There will be more Middle East crude and products going to European markets, where the demand is accelerating at the greatest rate.

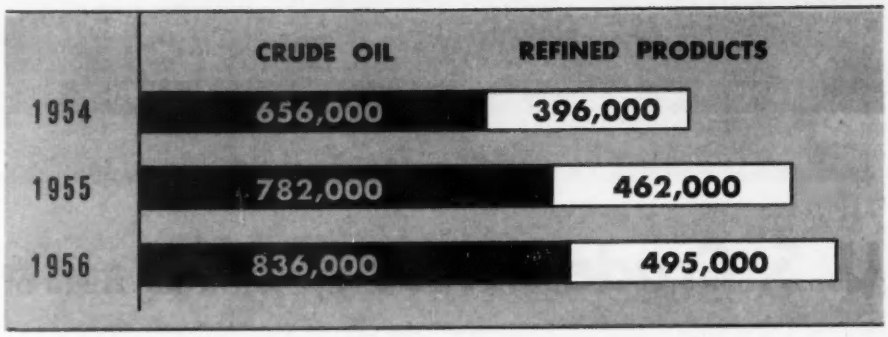
## U. S. EXPORTS PRACTICALLY NO CRUDE OIL

*(Barrels Daily)*




## OVER HALF OF U. S. IMPORTS IS CRUDE OIL

*(Barrels Daily)*

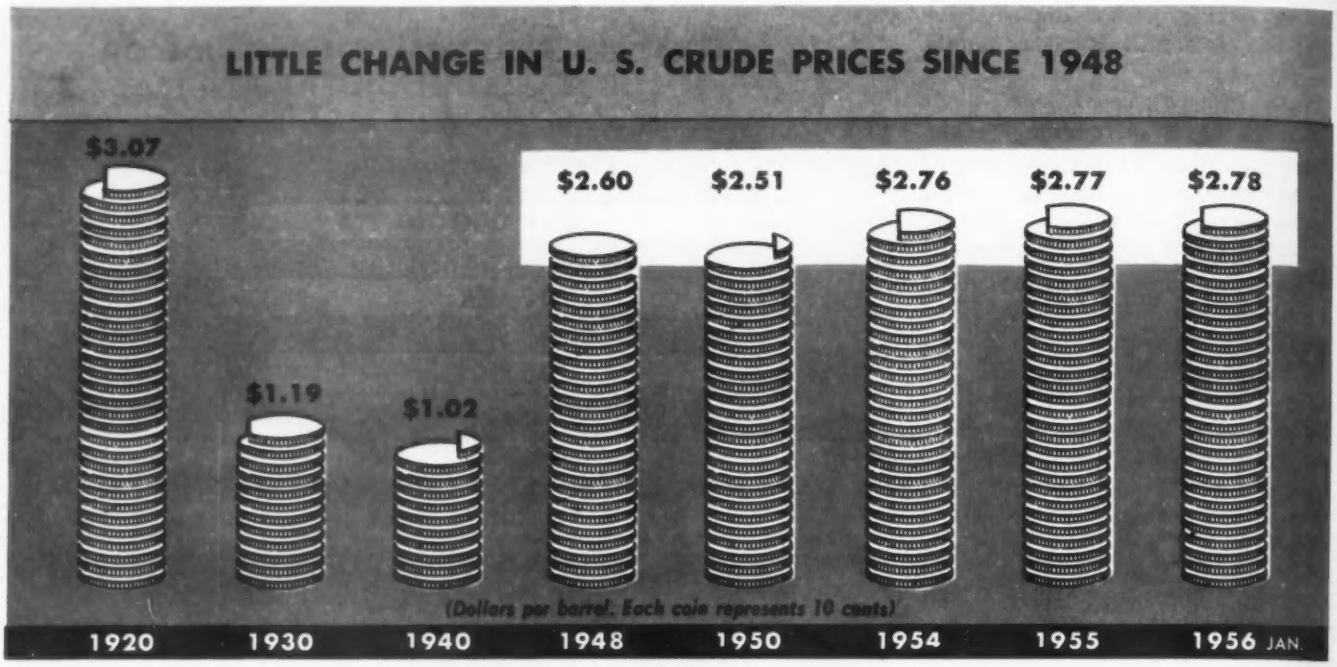



### U. S. Exports and Imports of Crude Oil and Refined Products, by Years

(Source: Bureau of Mines.)

THOUSANDS OF BARRELS

| | EXPORTS | | | | | | | IMPORTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Crude | | Refined | | All Oils | | | Crude | | Refined | | All Oils | | |
| YEAR | Total | Daily | Total | Daily | Total | Daily | YEAR | Total | Daily | Total | Daily | Total | Daily |
| 1918.... | 5,884 | 16 | 62,234 | 170 | 68,118 | 187 | 1918.... | 37,736 | 103 | 1,227 | 3 | 38,963 | 106 |
| 1919.... | 6,348 | 17 | 57,545 | 158 | 63,893 | 175 | 1919.... | 52,822 | 145 | 1,376 | 4 | 54,198 | 148 |
| 1920.... | 9,295 | 25 | 70,323 | 192 | 79,618 | 217 | 1920.... | 106,175 | 290 | 2,647 | 7 | 108,822 | 297 |
| 1921.... | 9,527 | 26 | 62,254 | 171 | 71,881 | 197 | 1921.... | 125,364 | 343 | 3,428 | 9 | 128,792 | 353 |
| 1922.... | 10,805 | 30 | 63,745 | 175 | 74,550 | 204 | 1922.... | 130,255 | 357 | 5,719 | 16 | 135,974 | 373 |
| 1923.... | 17,534 | 48 | 84,800 | 232 | 102,334 | 280 | 1923.... | 82,015 | 225 | 17,638 | 48 | 99,653 | 273 |
| 1924.... | 18,239 | 50 | 99,089 | 271 | 117,328 | 321 | 1924.... | 77,775 | 212 | 16,806 | 46 | 94,581 | 258 |
| 1925.... | 13,337 | 36 | 100,684 | 276 | 114,021 | 312 | 1925.... | 61,824 | 169 | 16,376 | 45 | 78,200 | 214 |
| 1926.... | 15,407 | 42 | 116,999 | 321 | 132,406 | 363 | 1926.... | 60,382 | 165 | 20,938 | 57 | 81,320 | 223 |
| 1927.... | 15,844 | 43 | 126,419 | 346 | 142,263 | 390 | 1927.... | 58,383 | 160 | 13,353 | 37 | 71,736 | 197 |
| 1928.... | 18,966 | 52 | 135,991 | 372 | 154,957 | 423 | 1928.... | 79,767 | 218 | 11,790 | 32 | 91,557 | 250 |
| 1929.... | 26,401 | 72 | 136,719 | 375 | 163,120 | 447 | 1929.... | 78,933 | 216 | 29,777 | 82 | 108,710 | 298 |
| 1930.... | 23,705 | 65 | 132,790 | 364 | 156,495 | 429 | 1930.... | 62,129 | 170 | 43,489 | 119 | 105,618 | 289 |
| 1931.... | 25,535 | 70 | 98,819 | 271 | 124,354 | 341 | 1931.... | 47,250 | 129 | 38,837 | 106 | 86,087 | 236 |
| 1932.... | 27,393 | 75 | 75,882 | 207 | 103,275 | 282 | 1932.... | 44,682 | 122 | 29,812 | 81 | 74,494 | 203 |
| 1933.... | 36,584 | 100 | 70,143 | 192 | 106,727 | 292 | 1933.... | 31,893 | 87 | 13,501 | 37 | 45,394 | 124 |
| 1934.... | 41,127 | 113 | 73,380 | 201 | 114,507 | 314 | 1934.... | 35,558 | 97 | 14,936 | 41 | 50,494 | 138 |
| 1935.... | 51,430 | 141 | 77,557 | 212 | 128,987 | 353 | 1935.... | 32,239 | 88 | 20,396 | 56 | 52,635 | 144 |
| 1936.... | 50,313 | 137 | 81,681 | 223 | 131,994 | 361 | 1936.... | 32,327 | 88 | 24,777 | 68 | 57,104 | 156 |
| 1937.... | 67,234 | 184 | 105,600 | 289 | 172,834 | 473 | 1937.... | 27,484 | 75 | 29,673 | 81 | 57,157 | 157 |
| 1938.... | 77,254 | 212 | 116,474 | 319 | 193,728 | 531 | 1938.... | 26,412 | 72 | 27,896 | 76 | 54,308 | 149 |
| 1939.... | 72,076 | 197 | 116,883 | 320 | 188,959 | 518 | 1939.... | 33,095 | 91 | 25,965 | 71 | 59,060 | 162 |
| 1940.... | 51,496 | 141 | 78,970 | 216 | 130,466 | 356 | 1940.... | 42,662 | 117 | 41,089 | 112 | 83,751 | 229 |
| 1941.... | 33,238 | 91 | 75,592 | 207 | 108,830 | 298 | 1941.... | 50,606 | 139 | 46,536 | 127 | 97,142 | 266 |
| 1942.... | 33,834 | 93 | 83,073 | 228 | 116,907 | 320 | 1942.... | 12,297 | 34 | 23,669 | 65 | 35,966 | 99 |
| 1943.... | 41,342 | 113 | 108,615 | 298 | 149,957 | 411 | 1943.... | 13,833 | 38 | 49,579 | 136 | 63,412 | 174 |
| 1944.... | 34,238 | 93 | 173,378 | 474 | 207,616 | 567 | 1944.... | 44,805 | 122 | 47,506 | 130 | 92,311 | 252 |
| 1945.... | 32,998 | 90 | 149,985 | 411 | 182,983 | 501 | 1945.... | 74,337 | 204 | 39,282 | 108 | 113,619 | 311 |
| 1946.... | 42,436 | 116 | 110,687 | 303 | 153,123 | 419 | 1946.... | 86,066 | 236 | 51,610 | 141 | 137,676 | 377 |
| 1947.... | 46,355 | 127 | 118,122 | 324 | 164,477 | 451 | 1947.... | 97,532 | 267 | 61,857 | 169 | 159,389 | 437 |
| 1948.... | 39,736 | 108 | 94,938 | 259 | 134,674 | 367 | 1948.... | 129,093 | 353 | 59,051 | 161 | 188,144 | 514 |
| 1949.... | 33,069 | 91 | 86,307 | 236 | 119,376 | 327 | 1949.... | 153,686 | 421 | 81,873 | 224 | 235,559 | 645 |
| 1950.... | 34,823 | 95 | 76,483 | 210 | 111,306 | 305 | 1950.... | 177,714 | 487 | 132,547 | 363 | 310,261 | 850 |
| 1951.... | 28,604 | 78 | 125,448 | 344 | 154,052 | 422 | 1951.... | 179,073 | 491 | 129,121 | 354 | 308,194 | 844 |
| 1952.... | 26,696 | 73 | 131,492 | 359 | 158,188 | 432 | 1952.... | 209,591 | 573 | 138,916 | 379 | 348,507 | 952 |
| 1953.... | 19,931 | 55 | 126,660 | 347 | 146,591 | 402 | 1953.... | 236,455 | 648 | 141,044 | 386 | 377,499 | 1,034 |
| 1954.... | 13,564 | 37 | 116,457 | 319 | 130,021 | 356 | 1954.... | 239,479 | 656 | 144,430 | 396 | 383,909 | 1,052 |
| 1955.... | 11,500 | 32 | 123,500 | 338 | 135,000 | 370 | 1955.... | 285,000 | 781 | 169,000 | 463 | 454,000 | 1,244 |
| 1956 Est. | 10,000 | 27 | 112,000 | 306 | 122,000 | 333 | 1956 Est. | 306,000 | 836 | 181,000 | 495 | 487,000 | 1,331 |




# U. S. Crude Prices . . . Steady trend or slight improvement forecast for 1956. Producers say price relief is necessary to offset higher material and labor costs.

U. S. CRUDE prices likely will hold at present levels or improve in 1956.

Producers contend that better prices are needed to offset increased costs of materials and labor. Markets for refined products have been generally firm and have encouraged the producers to hope for increases in postings.

The average price of crude at the wells in 1955 was about $2.77 per barrel, a nominal gain over the $2.76 of 1954. The slight improvement reflected several increases for Pennsylvania grade crude, increases for heavier California crudes, and miscellaneous local revisions. Those increases were in effect only part of the year, and they may result in a further small gain in the average price in 1956. Also, some additional increases on certain grades and in certain areas may occur in 1956, even if there is no general advance.

**U. S. Average Prices of Crude Oil at Wells**
Source: Bureau of Mines.

| YEAR | ($ per Bbl.) | YEAR | ($ per Bbl.) | YEAR | ($ per Bbl.) |
|---|---|---|---|---|---|
| 1918 | 1.98 | 1931 | .65 | 1944 | 1.21 |
| 1919 | 2.01 | 1932 | .87 | 1945 | 1.22 |
| 1920 | 3.07 | 1933 | .67 | 1946 | 1.41 |
| 1921 | 1.73 | 1934 | 1.00 | 1947 | 1.93 |
| 1922 | 1.61 | 1935 | .97 | 1948 | 2.60 |
| 1923 | 1.34 | 1936 | 1.09 | 1949 | 2.54 |
| 1924 | 1.43 | 1937 | 1.18 | 1950 | 2.51 |
| 1925 | 1.68 | 1938 | 1.13 | 1951 | 2.53 |
| 1926 | 1.88 | 1939 | 1.02 | 1952 | 2.53 |
| 1927 | 1.30 | 1940 | 1.02 | 1953 | 2.68 |
| 1928 | 1.17 | 1941 | 1.14 | 1954 | 2.76 |
| 1929 | 1.27 | 1942 | 1.19 | 1955 Est. | 2.77 |
| 1930 | 1.19 | 1943 | 1.20 | 1956 Jan. | 2.78 |

**Crude Price Changes in Mid-Continent, California, and West Texas, by Years**
(Dollars Per Barrel)

| DATE | Okla., Kans. 36-36.9° Gravity | Calif., Long Beach 27-27.9° | West Texas Sour 30-30.9° |
|---|---|---|---|
| 1937: Prior to Jan. 1 | $1.10 | $1.10 | $0.78 |
| January 28 | 1.22 | .... | 0.88 |
| 1938: October 12 | 1.02 | .... | 0.75 |
| 1939: No Changes | .... | .... | .... |
| 1940: February 1 | .... | 1.03 | .... |
| 1941: March 29 | .... | .... | 0.82 |
| April 1 | 1.07 | .... | .... |
| April 24 | .... | 1.09 | .... |
| May 20 | 1.17 | .... | .... |
| May 21 | .... | .... | 0.92 |
| May 23 | .... | 1.15 | .... |
| 1942: Feb. 3; frozen at Oct. 1, 1941 level | 1.17 | 1.15 | 0.92 |
| 1943: 1944; 1945: No Changes; prices frozen | .... | .... | .... |
| 1946: April 1: OPA Raise | 1.27 | 1.25 | 1.02 |
| July 25: Oil Prices decontrolled | 1.52 | .... | 1.27 |
| August 1 | .... | 1.50 | .... |
| November 15 | 1.62 | .... | .... |
| November 19 | .... | .... | 1.37 |
| 1947: March 10 | 1.87 | .... | 1.62 |
| March 19 | .... | 1.75 | .... |
| July 1 | .... | 1.95 | .... |
| October 15 | 2.07 | .... | .... |
| October 16 | .... | .... | 1.82 |
| December 6 | 2.57 | .... | 2.32 |
| December 27 | .... | 2.45 | .... |
| 1948: No Change | .... | .... | .... |
| 1949: June 1 | .... | 2.37 | .... |
| 1950: December 12 | .... | 2.41 | .... |
| 1951: Frozen at Jan. 25 level | 2.57 | 2.41 | 2.32 |
| 1952: No Changes; frozen | .... | .... | .... |
| 1953: Feb. 16; decontrolled | .... | 2.76 | .... |
| June 15 | 2.82 | .... | 2.32 |
| 1954: No Change | .... | .... | .... |
| 1955: No Change | .... | .... | .... |

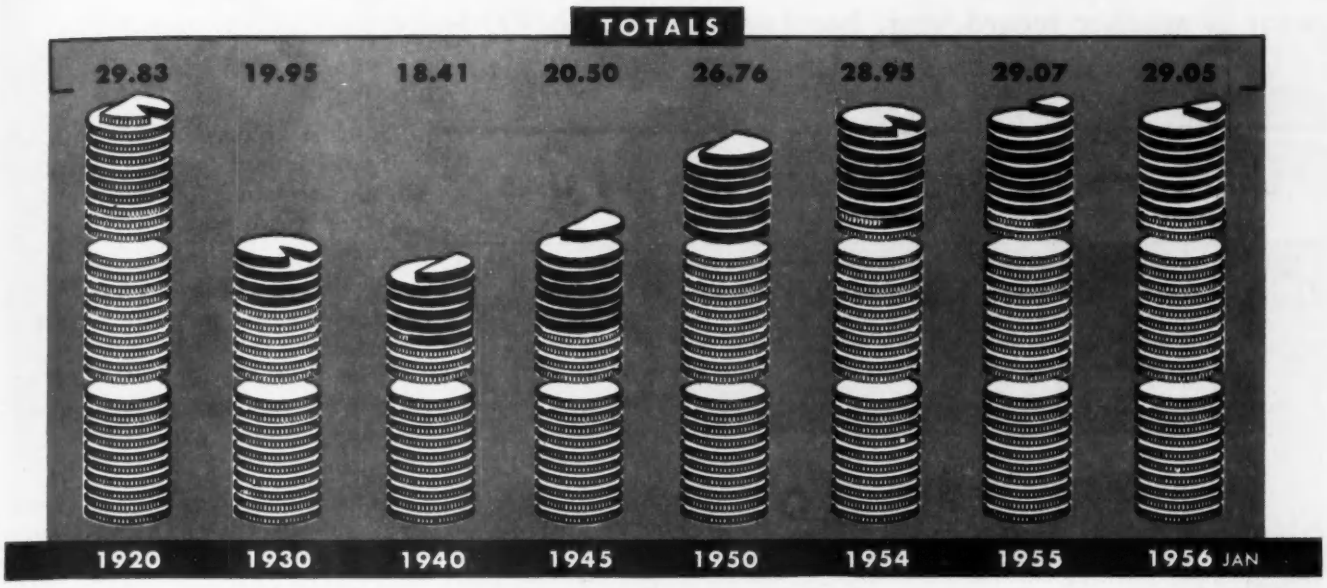
**Changes in Prices of Bradford, Pennsylvania, Crude, by Years**
(Dollars Per Barrel)

| Date | Price | Date | Price | Date | Price |
|---|---|---|---|---|---|
| 1937: | | 1941: | | 1949: | |
| Before | | June 18 | $2.75 | Mar. 11 | $3.75 |
| Jan. 1 | $2.15 | Aug. 14 | 2.98 | April 1 | 3.55 |
| Feb. 24 | 2.67 | Aug. 23 | 2.75 | April 13 | 3.40 |
| June 7 | 2.82 | | | May 11 | 3.27 |
| Sept. 1 | 2.60 | 1942: | | June 16 | 3.40 |
| Oct. 12 | 2.35 | [1]Feb. 3 | 2.75 | Dec. 12 | 3.54 |
| Dec. 1 | 2.20 | [2]Mar. 26 | 3.00 | | |
| | | | | 1950: | |
| 1938: | | [3]1943: | | May 1 | 3.65 |
| Mar. 7 | 2.05 | | | June 21 | 3.75 |
| June 13 | 1.80 | [3]1944: | | July 19 | 3.89 |
| Sept. 1 | 1.68 | | | Aug. 25 | 4.00 |
| | | [3]1945: | | Oct. 9 | 4.10 |
| 1939: | | | | Dec. 9 | 4.25 |
| Jan. 21 | 1.80 | 1946: | | | |
| Feb. 1 | 1.88 | [4]April 1 | 3.10 | [6]1951: | |
| Mar. 6 | 2.00 | [5]Aug. 1 | 3.35 | | |
| Oct. 6 | 2.25 | Sept. 1 | 3.41 | [6]1952: | |
| Nov. 1 | 2.40 | Dec. 9 | 3.55 | | |
| Dec. 1 | 2.50 | | | 1953: | |
| | | 1947: | | Feb. 16 | 4.40 |
| 1940: | | Jan. 1 | 3.65 | Aug. 1 | 4.55 |
| Jan 1 | 2.75 | Mar. 1 | 3.81 | Sept. 21 | 4.05 |
| May 22 | 2.50 | April 1 | 3.91 | | |
| June 18 | 2.25 | May 16 | 4.05 | 1954: | |
| July 12 | 2.00 | July 1 | 4.30 | Jan. 1 | 3.76 |
| Aug. 18 | 1.85 | Sept. 1 | 4.50 | May 20 | 3.26 |
| Nov. 12 | 2.00 | Dec. 1 | 5.00 | Sept. 1 | 3.23 |
| Dec. 17 | 2.15 | | | Dec. 1 | 3.35 |
| | | 1948: | | | |
| 1941: | | Dec. 11 | 4.50 | 1955: | |
| Jan. 27 | 2.30 | | | Jan. 21 | 3.50 |
| April 23 | 2.40 | 1949: | | July 11 | 3.60 |
| May 20 | 2.55 | Jan. 21 | 4.00 | Nov. 1 | 3.75 |
| | | | | Dec. 1 | 3.85 |

[1] Frozen at Oct. 1, 1941 level. [2] Penn. grade raise granted. [3] No change; price frozen. [4] Raise granted by OPA. [5] Oil prices decontrolled July 25, 1946. [6] No change; price frozen at Jan. 25, 1951, level.

## LITTLE INCREASE IN U. S. GASOLINE PRICES DESPITE HIGHER TAXES

(Cents per gallon. Each coin represents 1 cent. Dark coins—Taxes. Light coins—service station price excluding taxes).




# U. S. Gasoline Prices . . . Average price in 50 U. S. cities now about 21¼ cents per gallon . . . slightly under '55 average.

**U. S. Average Prices of Gasoline in 50 Cities, by Years**

Source: The Texas Co., via API.
Cents per Gallon

| YEAR | Dealer's Net | Service Sta. Excl. Tax | State and Local Tax | Federal Tax | Service Sta. Incl. Tax |
|---|---|---|---|---|---|
| 1918 | .... | 25.12 | 0.00 | .... | 25.12 |
| 1919 | .... | 25.41 | 0.06 | .... | 25.47 |
| 1920 | ... | 29.74 | 0.09 | .... | 29.83 |
| 1921 | .... | 26.11 | 0.20 | .... | 26.31 |
| 1922 | .... | 24.82 | 0.38 | .... | 25.20 |
| 1923 | .... | 21.06 | 0.91 | .... | 21.97 |
| 1924 | .... | 19.46 | 1.48 | .... | 20.94 |
| 1925 | .... | 20.09 | 2.11 | .... | 22.20 |
| 1926 | 17.44 | 20.97 | 2.41 | .... | 23.38 |
| 1927 | 15.00 | 18.29 | 2.80 | .... | 21.09 |
| 1928 | 14.83 | 17.90 | 3.04 | .... | 20.94 |
| 1929 | 14.58 | 17.92 | 3.50 | .... | 21.42 |
| 1930 | 12.48 | 16.17 | 3.78 | .... | 19.95 |
| 1931 | 9.65 | 12.98 | 4.00 | .... | 16.98 |
| 1932 | 10.08 | 13.30 | 4.13 | 0.50 | 17.93 |
| 1933 | 9.42 | 12.41 | 4.16 | 1.25 | 17.82 |
| 1934 | 9.81 | 13.64 | 4.21 | 1.00 | 18.85 |
| 1935 | 9.73 | 13.55 | 4.29 | 1.00 | 18.84 |
| 1936 | 10.21 | 14.10 | 4.35 | 1.00 | 19.45 |
| 1937 | 10.53 | 14.59 | 4.40 | 1.00 | 19.99 |
| 1938 | 10.04 | 14.07 | 4.44 | 1.00 | 19.51 |
| 1939 | 9.58 | 13.31 | 4.44 | 1.00 | 18.75 |
| 1940 | 9.08 | 12.75 | 4.41 | 1.25 | 18.41 |
| 1941 | 9.49 | 13.30 | 4.43 | 1.50 | 19.23 |
| 1942 | 10.44 | 14.46 | 4.47 | 1.50 | 20.43 |
| 1943 | 10.45 | 14.56 | 4.47 | 1.50 | 20.53 |
| 1944 | 10.49 | 14.62 | 4.47 | 1.50 | 20.59 |
| 1945 | 10.33 | 14.48 | 4.52 | 1.50 | 20.50 |
| 1946 | 10.40 | 14.69 | 4.58 | 1.50 | 20.77 |
| 1947 | 12.33 | 16.93 | 4.68 | 1.50 | 23.11 |
| 1948 | 14.55 | 19.54 | 4.84 | 1.50 | 25.88 |
| 1949 | 15.05 | 20.27 | 5.02 | 1.50 | 26.79 |
| 1950 | 15.10 | 20.08 | 5.18 | 1.50 | 26.76 |
| 1951 | 15.33 | 20.31 | 5.25 | 1.59 | 27.15 |
| 1952 | 15.27 | 20.24 | 5.32 | 2.00 | 27.56 |
| 1953 | 15.95 | 21.28 | 5.41 | 2.00 | 28.69 |
| 1954 | 16.19 | 21.56 | 5.39 | 2.00 | 28.95 |
| 1955 Est. | 16.17 | 21.42 | 5.65 | 2.00 | 29.07 |
| 1956 Jan. | 16.10 | 21.25 | 5.80 | 2.00 | 29.05 |

THE MOTORISTS of the U. S. continues to get a good bargain in gasoline. The average price of gasoline in 50 U. S. cities currently is only about 21¼ cents per gallon, exclusive of taxes. The average price in 1955 was 21.42 cents a gallon, compared with 21.56 in 1954 and 21.28 in 1953.

The price of gasoline is swollen materially by the taxes imposed upon it. At present taxes totaling 7.8 cents a gallon are collected, pushing the cost to the motorist to 29.05 cents a gallon.

The tax of 7.8 cents per gallon includes state and local taxes of 5.8 cents and the federal tax of 2 cents.

A slight increase occurred in 1955 in the index of wholesale prices of crude petroleum and petroleum products. The index rose to 112.5 percent of the 1947-1949 average from 110.8 in 1954, approximately regaining the 1953 level of 112.7. The increase reflected somewhat improved prices of fuel oils and raises in postings for Pennsylvania grade crude and heavier grades of California crude.

Petroleum industry prices have been staying closely in line with the trend of prices of commodities in general. Wholesale prices of all commodities in 1955 averaged 110.7 percent of the 1947-1949 level, compared with 110.3 in 1954, 110.0 in 1953, and a peak of 114.8 in 1951.

**Index of Wholesale Prices**

**(All Commodities vs. Crude Petroleum and Petroleum Products.)**

**Source: U. S. Bureau of Labor Statistics. 1947-1949 = 100**

| YEAR | All Commodities | Crude Oil & Products | YEAR | All Commodities | Crude Oil & Products |
|---|---|---|---|---|---|
| 1926 | 65.0 | 98.1 | 1941 | 56.8 | 56.0 |
| 1927 | 62.0 | 71.3 | 1942 | 64.2 | 58.7 |
| 1928 | 62.9 | 70.6 | 1943 | 67.0 | 61.4 |
| 1929 | 61.9 | 69.9 | 1944 | 67.6 | 62.7 |
| 1930 | 56.1 | 60.4 | 1945 | 68.8 | 62.4 |
| 1931 | 47.4 | 38.7 | 1946 | 78.7 | 66.3 |
| 1932 | 42.1 | 44.5 | 1947 | 96.4 | 88.2 |
| 1933 | 42.8 | 40.2 | 1948 | 104.4 | 111.7 |
| 1934 | 48.7 | 49.5 | 1949 | 99.2 | 100.1 |
| 1935 | 52.0 | 50.3 | 1950 | 103.1 | 103.7 |
| 1936 | 52.5 | 56.2 | 1951 | 114.8 | 110.5 |
| 1937 | 56.1 | 59.3 | 1952 | 111.6 | 109.3 |
| 1938 | 51.1 | 54.9 | 1953 | 110.0 | 112.7 |
| 1939 | 50.1 | 51.3 | 1954 | 110.3 | 110.8 |
| 1940 | 51.1 | 49.1 | 1955 Est. | 110.7 | 112.5 |
| | | | 1956: Jan. | 111.6 | 115.6 |

# U. S. Stocks of Oils . . . Favorable conditions at beginning of '56

**point to another record year. Stocks total 716,428,000 barrels.**

## LARGE STOCKS OF OIL NECESSARY IN U. S.

| END OF YEAR | STOCKS OF CRUDE OIL *Millions of Barrels* | DAY'S SUPPLY |
|---|---|---|
| 1948 | 256.6 | 44 |
| 1950 | 248.4 | 42 |
| 1952 | 271.9 | 40 |
| 1954 | 258.4 | 37 |
| 1955 | 262.0 | 32 |

| END OF YEAR | STOCKS OF GASOLINE *Millions of Barrels* | DAY'S SUPPLY |
|---|---|---|
| 1948 | 101.0 | 41 |
| 1950 | 116.0 | 42 |
| 1952 | 134.7 | 42 |
| 1954 | 155.4 | 46 |
| 1955 | 164.8 | 46 |

| STOCKS OF DISTILLATE FUEL OIL | | |
|---|---|---|
| END OF YEAR | *Millions of Barrels* | DAY'S SUPPLY |
| 1948 | 71.4 | 72 |
| 1950 | 71.9 | 64 |
| 1952 | 98.7 | 71 |
| 1954 | 108.1 | 75 |
| 1955 | 112.8 | 72 |

THE FAVORABLE condition of crude oil and refined product inventories at the beginning of 1956 points to another good year for the oil industry.

If the present stock situation continues, markets are sure to feel its effect. Result: Another year of stable prices. Firm markets will encourage expanded activity in drilling, wildcatting, refining and pipe line construction.

After a year when consumption set new records, the oil industry entered 1956 with crude oil and refined product stocks totaling 716,428,000 barrels. Although this is a 1,494,000 barrel increase over a year, it represents an 82 day supply compared to the 88 day supply on January 1, 1955.

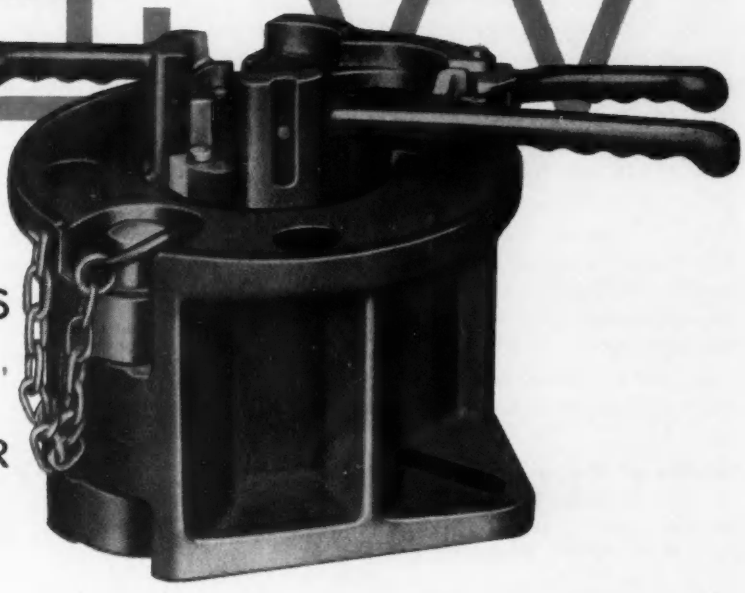
The comparatively low level of inventories means the industry will not be able to draw upon stocks for supplies in 1956. Consequently, sufficient volumes must be produced and refined to satisfy current requirements.

U. S. stocks of crude oil increased to about 262,033,000 barrels at the end of 1955—35 days' supply at current consumption rates. This total represents a 4-million barrel increase over the same date in 1954—yet consumption increased to the extent there were two days less supply on hand at the end of 1955.

In relation to demand, the supply of domestic crude oil was at an all-time low at the beginning of this year.

U. S. stocks of gasoline at the beginning of 1956 were about 9 million barrels larger than a year ago. However, the 46-day supply on hand was the same as it has been for the past three years. Inventories at the beginning of the year totaled about 164,859,000 barrels compared to 155,400,000 barrels on hand a year ago. The 1955 increase is not large in view of the greater consumption rates. The figures also include quantities in pipe lines and additional product pipe lines went into service during 1955. Volumes in pipe lines are not usable, be-

# NEW

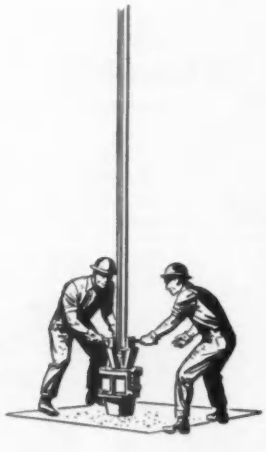


## THE BAASH-ROSS "TS-100" TUBING SPIDER

*for greater speed . . . simplicity . . . convenience . . . economy on tubing jobs!*

**Here's an important new advancement from Baash-Ross—a Tubing Spider incorporating many desirable features for running both single and *multiple* tubing strings...**

*Handles Single Strings*



*...or Multiple Strings!*

- Fast, easy-to-use, perfectly-aligned 3 section unitized Slip Assembly.
- Large removable slip segments transmit load directly to body. No load-supporting pins or bolts.
- Slip segments easily changed by removing a simple keeper pin (which carries no load). It's quick.
- Slip Assembly latches *automatically* around tubing and releases *automatically* only when the handles are opened. This prevents accidental opening and guards against the slips being thrown from the bowl and dropping the tubing.
- Bowl made in two halves for easy installation around tubing. It fits into rotary table square—or can be bolted to well head flange.
- To run *double* tubing strings, a slotted half of the bowl is provided to accommodate the auxiliary tube. The Slip Assembly is not changed.
- Only inexpensive liner segments need be changed to fit all tubing sizes from 1" through 3".

*There are many other features.*
*Send for new bulletin*
*which gives full details.*

**BAASH-ROSS TOOL COMPANY**
DIVISION OF JOY MANUFACTURING COMPANY

*Los Angeles, Calif. • Houston, Texas • Odessa, Texas • Oklahoma City, Okla. • Casper, Wyo. • Olney, Ill. • Edmonton, Alb., Canada • New York City*

ing required to keep the system in operation.

Distillate fuel oils stocks were the cause of some concern last November when the supply showed a 7,750,000 barrel increase over the same date in 1954. However, prolonged cold weather in much of the country caused heavy drafts in the final two months of the year. On January 1, 1956, stocks totaled 112,792,000 barrels—4,648,000 barrels more than a year ago. This is still a satisfactory level in view of current demand increases. In fact, there were 72 days' supply on hand at the beginning of this year, compared to a 75 day supply on the same date a year ago.

At the beginning of the year, residual fuel stocks were 12,733,000 barrels lower than the year before. Year-end inventories showed 39,872,000 barrels on hand compared to 52,105,000 barrels at the start of 1955. There was a 26-day supply of residual fuel on hand January 1, compared to a 36-day supply January 1, 1955.

Kerosine stocks dropped slightly from 27,826,000 barrels in 1954 to 27,437,000 barrels last year.

All refined products combined totaled 438,095,000 barrels at the beginning of 1956—a 7,406,000 barrel or 1.7 percent decrease compared to the total stocks on hand a year ago. This compares with a 1.1 percent increase in 1954 over the previous year.

Of the six major grades of crude, three showed inventory decreases last year. Stocks of Oklahoma-origin crude started 1955 at 25,204,000 barrels; on December 31 they totaled 22,066,000 barrels—a 3,138,000 barrel decrease. California crude showed a 2,778,000 barrel decrease from 31,249,000 barrels to 28,471,000 barrels. And Illinois-Indiana crude had a 2,302,000-barrel decrease.

Texas-produced crude had the biggest increase—5,671,000 barrels. Year-end inventories increased from 118,564,000 barrels in 1954 to 124,235,000 barrels in 1955.

## Stocks of Major Petroleum Products Held by Refining Companies in U. S. at End of December, 1955, Compared With 1954

Stock at refineries, at bulk terminals, in transit and in pipe lines. Data for 1954 from Bureau of Mines monthly reports; for 1955 from weekly reports of American Petroleum Institute.

(THOUSANDS OF BARRELS)

| DISTRICT | Finished and Unfinished Gasoline | | Kerosine | | Distillate Fuel Oil | | Residual Fuel Oil | |
|---|---|---|---|---|---|---|---|---|
| | 1954 | 1955 | 1954 | 1955 | 1954 | 1955 | 1954 | 1955 |
| East Coast | 31,781 | 35,724 | 11,480 | 11,323 | 38,452 | 41,367 | 9,360 | 11,497 |
| Appalachian | 6,718 | 6,990 | 1,073 | 1,044 | 2,802 | 3,052 | 658 | 815 |
| District 1 | 4,291 | 4,634 | 641 | 605 | 2,042 | 2,205 | 445 | 513 |
| District 2 | 2,427 | 2,356 | 432 | 439 | 760 | 847 | 213 | 302 |
| Ind., Ill., Ky | 33,470 | 34,179 | 7,296 | 6,375 | 19,132 | 19,296 | 3,660 | 3,778 |
| Okla., Kans., Mo. | 15,082 | 17,614 | 1,701 | 1,452 | 11,760 | 11,685 | 1,260 | 1,335 |
| Inland Texas | 5,833 | 5,945 | 373 | 449 | 2,070 | 2,193 | 1,368 | 1,320 |
| Texas Gulf Coast | 22,871 | 22,347 | 2,429 | 2,904 | 14,012 | 13,527 | 4,086 | 6,675 |
| La. Gulf Coast | 10,928 | 9,966 | 2,304 | 2,560 | 4,329 | 5,961 | 1,328 | 1,431 |
| Ark., La. Inland | 4,118 | 4,271 | 586 | 654 | 1,476 | 2,199 | 121 | 67 |
| Rocky Mountains | 6,491 | 5,950 | 248 | 291 | 2,167 | 2,628 | 835 | 745 |
| District 3 | 143 | 246 | 5 | 6 | 97 | 55 | 34 | 30 |
| District 4 | 6,348 | 5,704 | 243 | 285 | 2,070 | 2,573 | 801 | 715 |
| California | 18,108 | 21,873 | 336 | 385 | 11,944 | 10,884 | 29,429 | 12,209 |
| Total | 155,400 | 164,859 | 27,826 | 27,437 | 108,144 | 112,792 | 52,105 | 39,872 |

## Stocks of Crude Petroleum in U. S. By Grades, at End of Year

(Based on Weekly Reports of U. S. Bureau of Mines)

(THOUSANDS OF BARRELS)

| GRADE or ORIGIN | Jan. 1, 1955 | Dec. 31, 1955 | Changes |
|---|---|---|---|
| Pennsylvania Grade | 2,961 | 2,876 | — 85 |
| Other Appalachian | 1,653 | 2,191 | + 538 |
| Lima-Michigan | 659 | 601 | — 58 |
| Illinois-Indiana | 11,141 | 8,839 | —2,302 |
| Arkansas | 3,278 | 2,086 | —1,192 |
| Kansas | 8,657 | 7,614 | —1,043 |
| Nebraska and N. Dakota | 1,721 | 2,093 | + 372 |
| Louisiana | 14,428 | 15,971 | +1,543 |
| Northern | 2,383 | 2,505 | + 122 |
| Gulf Coast | 12,045 | 13,466 | +1,421 |
| Mississippi | 2,897 | 2,786 | — 111 |
| New Mexico | 8,166 | 7,599 | — 567 |
| Oklahoma | 25,204 | 22,066 | —3,138 |
| Texas | 118,564 | 124,235 | +5,671 |
| East Texas | 9,899 | 9,559 | — 340 |
| West Texas | 52,830 | 59,027 | +6,197 |
| Gulf Coast | 23,258 | 24,447 | +1,189 |
| Other Texas | 32,577 | 31,202 | —1,375 |
| Panhandle | 3,443 | 2,595 | — 848 |
| North | 9,055 | 9,132 | + 77 |
| South | 5,201 | 4,859 | — 342 |
| Other | 14,878 | 14,616 | — 262 |
| Wyoming | 13,980 | 15,430 | +1,450 |
| Other Rock Mountain | 5,309 | 6,311 | +1,002 |
| California | 31,249 | 28,471 | —2,778 |
| Foreign | 11,619 | 12,864 | +1,245 |
| In California | 3,270 | 2,243 | —1,027 |
| Other Foreign | 8,349 | 10,621 | +2,272 |
| Total U.S. | 261,486 | 262,033 | + 547 |

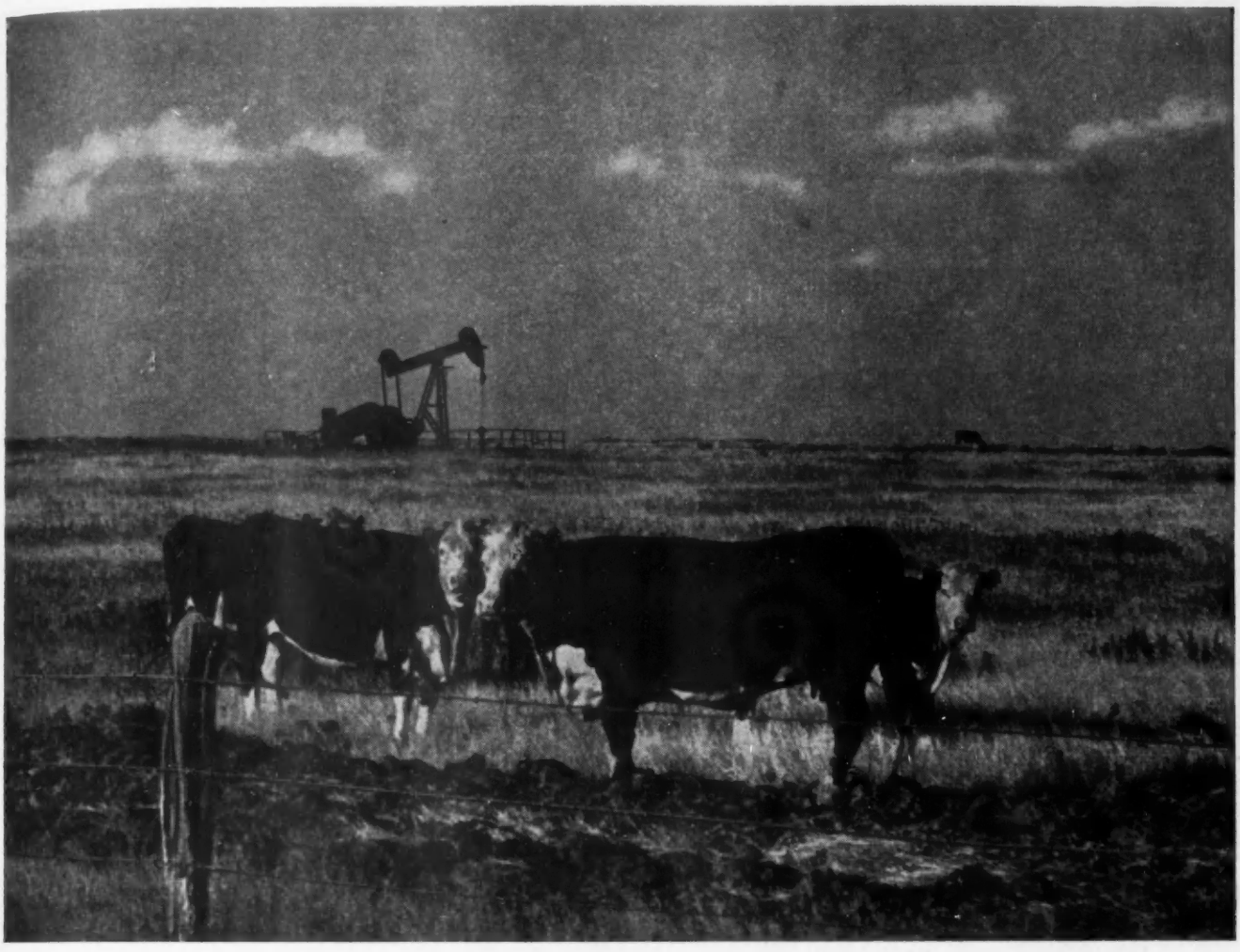
## U. S. Stocks of All Oils and Crude Oil

(Source: Bureau of Mines, except Dec., 1955, estimated.)

THOUSANDS OF BARRELS

| END OF YEAR | ALL OILS | | CRUDE OIL | | GASOLINE | | ΣDISTILLATE | |
|---|---|---|---|---|---|---|---|---|
| | Barrels | Days' Supply | Barrels | Days' Supply | Barrels | Days' Supply | Barrels | Days' Supply |
| | | | Refinable | | †Motor Fuel | | | |
| 1918 | 193,411 | 165 | 144,336 | 125 | 7,080 | 28 | ..... | .. |
| 1919 | 200,383 | 164 | 149,356 | 127 | 10,638 | 40 | ..... | .. |
| 1920 | 209,845 | 156 | 149,448 | 103 | 11,009 | 32 | ..... | .. |
| 1921 | 294,428 | 203 | 217,324 | 150 | 13,954 | 39 | ..... | .. |
| 1922 | 385,349 | 232 | 295,708 | 181 | 21,043 | 50 | ..... | .. |
| 1923 | 492,088 | 235 | 340,637 | 169 | 25,593 | 48 | ..... | .. |
| 1924 | 520,287 | 236 | 360,475 | 171 | 30,823 | 50 | ..... | .. |
| 1925 | 552,464 | 239 | 345,863 | 150 | 39,273 | 54 | ..... | .. |
| 1926 | 527,084 | 210 | 315,029 | 133 | 39,521 | 46 | ..... | .. |
| 1927 | 597,176 | 231 | 379,660 | 155 | 34,115 | 36 | ..... | .. |
| 1928 | 621,010 | 224 | 392,629 | 148 | 33,742 | 31 | ..... | .. |
| 1929 | 689,166 | 228 | 428,445 | 149 | 42,498 | 35 | ..... | .. |
| 1930 | 665,497 | 224 | 411,882 | 153 | 54,192 | 43 | ..... | .. |
| 1931 | 621,673 | 221 | 370,194 | 144 | 56,171 | 45 | ..... | .. |
| 1932 | 590,106 | 230 | 339,875 | 145 | 53,805 | 48 | ..... | .. |
| 1933 | 602,198 | 226 | 354,223 | 140 | 55,933 | 50 | 17,025 | .. |
| 1934 | 564,350 | 199 | 337,254 | 128 | 56,959 | 48 | 21,957 | .. |
| 1935 | 541,700 | 178 | 314,855 | 109 | 60,391 | 47 | 19,930 | 71 |
| 1936 | 519,229 | 155 | 288,579 | 91 | 66,969 | 48 | 22,813 | 68 |
| 1937 | 564,728 | 154 | 305,833 | 87 | 81,748 | 54 | 22,566 | 56 |
| 1938 | 567,703 | 156 | 274,165 | 79 | 76,510 | 49 | *36,224 | *90 |
| 1939 | 525,838 | 135 | 238,910 | 66 | 87,286 | 53 | 33,718 | 74 |
| 1940 | 563,277 | 141 | 264,079 | 70 | 83,647 | 50 | 42,940 | 87 |
| 1941 | 552,328 | 127 | 247,499 | 61 | 90,596 | 48 | 49,926 | 93 |
| 1942 | 497,940 | 116 | 234,889 | 61 | 75,404 | 44 | 44,940 | 75 |
| 1943 | 485,698 | 106 | 243,506 | 59 | 69,505 | 41 | 41,728 | 65 |
| 1944 | 477,089 | 95 | 220,862 | 46 | 78,073 | 39 | 38,333 | 55 |
| 1945 | 463,579 | 87 | 218,763 | 45 | 93,682 | 44 | 35,778 | 50 |
| 1946 | 507,094 | 95 | 224,473 | 45 | 89,515 | 42 | 59,620 | 80 |
| 1947 | 502,053 | 85 | 224,929 | 42 | 87,407 | 38 | 51,081 | 57 |
| 1948 | 607,856 | 99 | 246,572 | 43 | 101,060 | 41 | 76,001 | 77 |
| | | | All Crude | | | | | |
| *1948 | 605,743 | 99 | 256,627 | 44 | 101,060 | 41 | *71,429 | *72 |
| 1949 | 603,119 | 98 | 253,356 | 46 | 110,417 | 42 | 75,207 | 80 |
| 1950 | 582,710 | 86 | 248,463 | 42 | 116,024 | 42 | 71,948 | 64 |
| 1951 | 634,109 | 85 | 255,783 | 39 | *135,306 | 44 | *86,619 | 67 |
| | | | | | ‡Gasoline | | | |
| 1952 | 673,754 | 87 | 271,928 | 40 | 134,737 | 42 | 98,688 | 71 |
| 1953 | 725,507 | 91 | 274,445 | 39 | 157,872 | 46 | 111,741 | 78 |
| 1954 | 714,933 | 88 | 258,385 | 37 | 155,400 | 46 | 108,144 | 75 |
| 1955 | 716,428 | 82 | 262,033 | 35 | 164,859 | 46 | 112,792 | 72 |
| 1956 Est. | 726,428 | 80 | 262,033 | 34 | ..... | .. | ..... | .. |

* Revised; new basis. † Finished and natural gasoline. ‡ Finished and unfinished gasoline. Σ Distillate and residual fuel oils included together prior to 1935.



# 55 MILES SOUTHWEST OF NOWHERE!

Miles of waste land often separate wells from the nearest source of supply . . . miles that present almost insurmountable transportation problems . . . even greater maintenance problems. In these cases, Southwestern Plastic Pipe has proved itself time and again.

Southwestern Plastic Pipe is light weight, easy-to-transport, easy-to-handle, easy-to-install. Fewer men and less time are required for installation. With rust, rot and electrolytic corrosion eliminated, maintenance problems are reduced to a minimum.

Wherever your wells are located, investigate Southwestern Plastic Oil Field Pipe. You'll find real economy now, but even more important, you'll save maintenance expense for years to come.

Write today for full information on Southwestern Plastic Pipe. You'll receive descriptive literature on several types of Oil Field Pipe manufactured by Southwestern . . . each type designed to do specific jobs better. Mail the convenient coupon now.

*Look For This Sign At Your Oil Field Supply Store*

SOUTHWESTERN PLASTIC PIPE

I am interested in Southwestern Plastic Oil Field Pipe. Please send full information on the following uses. No obligation of course.

☐ Salt Water Disposal ☐ Gathering Lines
☐ Sour Crude Lines ☐ Water Systems
☐ Other (Please Specify)_____

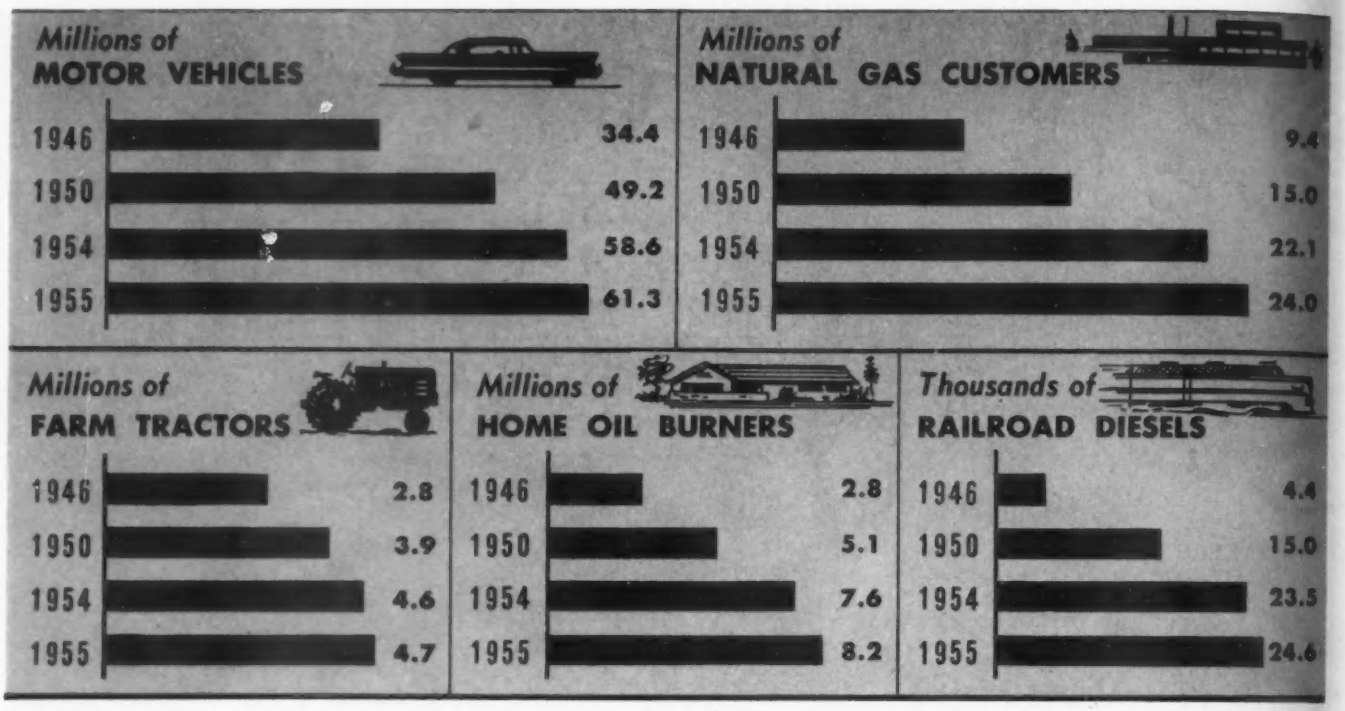
Name_____
Company Name_____
Mailing Address_____
City_____ State_____

Copyright 1956, Southwestern Plastic Pipe Co.

**NON CORROSIVE ● ECONOMICAL INSTALLATION ● REDUCES BUILD-UP ● LESS FRICTION LOSS**

Southwestern Plastic Pipe Co. A Div. of Texas Vitrified Pipe Co. P. O. Box 117 Mineral Wells, Texas Phone 2050

## HUGE GROWTH IN U.S. OIL AND GAS USING UNITS




# Oil and Gas Using Units . . . Continued growth means more consumption of oil and gas.

THE NUMBER of oil and gas consuming units in the U. S. continues to grow at a rapid pace. With population expected to increase faster than ever before, additional sharp growth is anticipated for the future. This will cause greater consumption of oil and gas.

U. S. population is expected to reach 220 million people by 1975, an increase of 55 million during the next 20 years compared with a gain of only 38 million during the past 20 years. This prospect indicates there will be no interruption in the growth of oil and gas using units. There will be more homes to heat. There also will be more automobiles, trucks, buses, planes, farm tractors, factories and railroad locomotives using oil and gas.

**Motor Vehicles** in the U. S. continue to increase at a rapid pace. There were 61.3 million passenger cars, trucks and buses in operation at the end of 1955. This represented a gain of 2.7 million during the past year. This was a greater rate of growth than the increase of 2.3 million during 1954.

There has been a very sharp growth in number of U. S. vehicles during recent years. The 61.3 vehicles at the end of 1955 was 20.1 million, or 50 percent, greater than at the end of 1948. There has been a growth of 8.0 million since 1952.

**Natural Gas Customers.** There has been an amazing growth in U. S. natural gas customers. The end of 1955 found 24.0 million natural gas customers, a gain of 1.9 million during the last year.

There now are more than twice as many natural gas customers as at the end of 1948.

Much of this great expansion in natural gas customers has been due to the expansion of transmission lines to practically all sectors of the nation. Before the end of 1956 all but two of the 48 states will have natural gas available.

**Home Oil Burners.** Rapid expansion of natural gas has not slowed down the increase in home oil burners. Growing population has provided ample room for growth of both heating fuels.

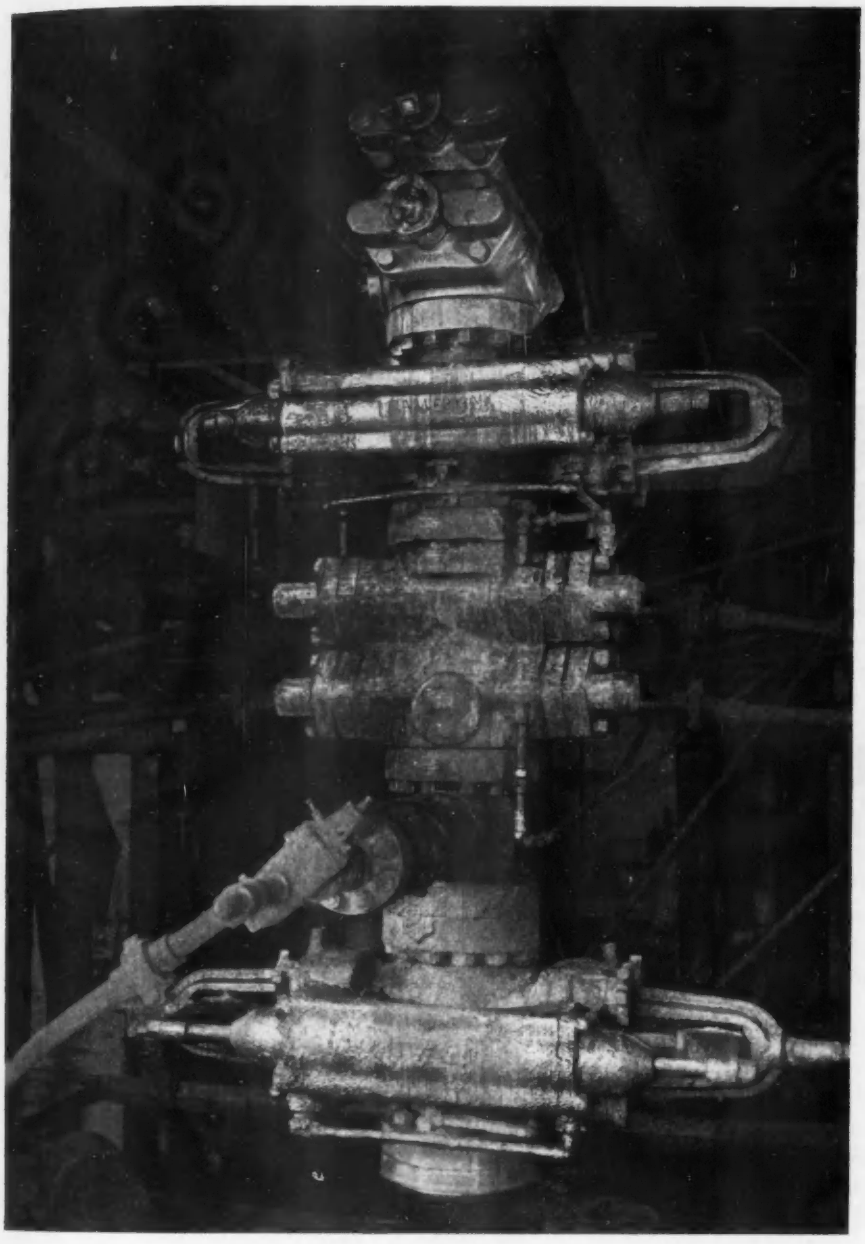
At the end of 1955 there were 8.2 million home oil burners in use. This was double the number that existed as recently as 1948. The past 12 months saw home oil burners increase by 0.6 million, a rate equal that in other recent years.

**Railroad Diesels.** U. S. railroads have become dieselized since World War II. Today 24,600 diesel locomotives are in use. This compares with 23,500 a year ago.

In 1946 there were only 4400 diesel locomotives on U. S. railroads. This grew to 8100 by 1948. Since 1948 they have tripled in number.

**Farm Tractors.** Mechanization of U. S. farms is continuing, although at a slower rate than in early postwar years.

The 4.7 million tractors on U. S. farms at the end of 1955, compared with 4.6 at the end of 1954. The close of 1948 had only 3.5 million farm tractors.



**WORLD'S DEEPEST WELL**

**WORLD'S BEST EQUIPMENT**

**Hearty Congratulations to:**

**Richardson and Bass, John W. Mecom and Freeport Sulphur. We are happy to have been a part of their remarkable accomplishment, the LL&E No. 1-L Humble, in the Lake Washington Field of Plaquemine Parish, Louisiana.**

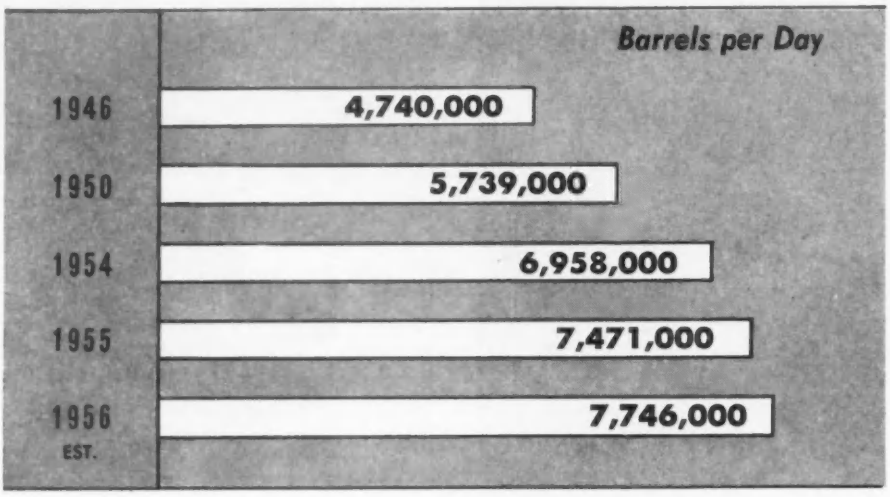
*Cameron*

**IRON WORKS, INC.**

**P. O. BOX 1212 • HOUSTON, TEXAS**

**Export Office: 7912 Empire State Bldg., New York City.**
**In England: Cameron Iron Works Ltd., Time & Life Bldg., New Bond Street, London W. 1 England.**

## U. S. REFINERY CRUDE RUNS RISE SWIFTLY




# Refinery Operations . . . Runs expected to average 7.75 million barrels daily during 1956.

U. S. CRUDE runs to stills are likely to be about 268,000 barrels a day or 3.6 percent higher in 1956 than in 1955. They are expected to average 7,746,000 barrels daily, compared with 7,478,000 barrels in 1955.

This prediction comes after one of the most outstanding years in refining history—a year when prices were more stable—stocks returned to normal after an excessive trend—and demand soared to new heights.

With these factors in the background, refiners are beginning 1956 with a bright outlook. Stocks are in good condition. Demand is still moving upward. Increased runs, plus the fact that unused capacity at year's end was less than in previous years, will necessitate added expansion of refining capacity.

In fact, with runs averaging 88.9 percent of capacity, refiners operated nearer full capacity last year than at any time since 1947, when 93.9 percent of U. S. refining capacity was in use. The yearly average for the past five or six years is about 87 percent.

The 1955 record is in contrast with 1954, when refineries were caught between a downward trend in prices and an upward swing in costs. That year, refiners reported the biggest gap between capacity and crude runs—using only 83.3 percent of capacity—for any time since the end of World War II. Cutbacks in crude runs were made in nearly every refining area.

During 1955, crude runs increased in every area but Appalachian District 1, where the daily average dropped 5 percent. An increase of 15.6 percent was reported in Appalachian District 2.

The Louisiana Gulf Coast had an outstanding increase, 14.5 percent over 1954, with crude runs of 655,700 barrels daily, compared with 572,600 barrels in 1954.

Of the four areas showing the largest crude runs, the Texas Gulf Coast showed the biggest increase—148,000 barrels a day or 8.8 percent over 1954. Illinois-Indiana-Kentucky reported crude runs of 1,368,200 barrels daily, 7.3 percent above 1954. California had a 4.3 percent increase to 1,064,600 barrels per day. The East Coast increased runs 3.4 percent to 1,064,300 barrels daily. Other busy areas included Oklahoma-Kansas-Missouri and New Mexico.

In recent years, refining capacity has grown steadily to keep ahead of rapidly increasing runs to stills. During the past 10 years, U. S. daily refining capacity has been expanded 260,000 barrels more than crude runs to stills. Daily crude runs have increased 2,740,000 barrels since 1946, while daily refining capacity has increased nearly 3 million barrels.

**U. S. Crude Runs to Stills, by Years**
Source: Bureau of Mines, except Nov.-Dec., 1955 from API.

(THOUSANDS OF BARRELS)

| Year | Total | Daily | Year | Total | Daily |
|---|---|---|---|---|---|
| 1918... | 326,025 | 893 | 1938. | 1,165,015 | 3,192 |
| 1919... | 361,520 | 990 | 1939. | 1,237,840 | 3,391 |
| 1920... | 433,915 | 1,186 | 1940. | 1,294,283 | 3,536 |
| 1921... | 443,363 | 1,215 | 1941. | 1,409,192 | 3,861 |
| 1922... | 500,706 | 1,372 | 1942. | 1,334,103 | 4,655 |
| 1923... | 581,238 | 1,592 | 1943. | 1,429,738 | 3,917 |
| 1924... | 643,719 | 1,759 | 1944. | 1,665,684 | 4,551 |
| 1925... | 739,920 | 2,027 | 1945. | 1,719,534 | 4,711 |
| 1926... | 779,264 | 2,135 | 1946. | 1,730,197 | 4,740 |
| 1927... | 828,835 | 2,271 | 1947. | 1,852,246 | 5,075 |
| 1928... | 913,295 | 2,295 | 1948. | 2,048,349 | 5,597 |
| 1929... | 987,708 | 2,706 | 1949. | 5,944,221 | 5,327 |
| 1930... | 927,447 | 2,541 | 1950. | 2,094,867 | 5,739 |
| 1931... | 894,608 | 2,451 | 1951. | 2,370,404 | 6,494 |
| 1932... | 819,997 | 2,240 | 1952. | 2,441,259 | 6,670 |
| 1933... | 861,254 | 2,360 | 1953. | 2,554,865 | 7,000 |
| 1934... | 895,636 | 2,454 | 1954. | 2,539,564 | 6,958 |
| 1935... | 965,790 | 2,646 | 1955 | 2,729,570 | 7,478 |
| 1936... | 1,068,570 | 2,919 | 1956 | | |
| 1937... | 1,183,440 | 3,242 | Est. | 2,835,000 | 7,746 |

**U. S. Crude Runs to Stills and Refining Capacity, by Districts**

Runs from Bureau of Mines, except Nov.-Dec., 1955, from API; capacities from API.

(THOUSANDS OF BARRELS)

| | DAILY CAPACITY AND USE IN DECEMBER | | | | | | CRUDE RUN DURING YEAR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Capacity | | Runs | | % Operated | | Total Amount | | Daily Average | | |
| | 1954 | 1955 | 1954 | 1955 | 1954 | 1955 | 1954 | 1955 | 1954 | 1955 | % Dif. |
| East Coast | 1,220 | 1,170 | 1,048.0 | 1,089.5 | 85.9 | 93.1 | 375,845 | 388,479 | 1,029.7 | 1,064.3 | + 3.4 |
| Appalachian Dist. 1 | 111 | 108 | 98.1 | 107.3 | 88.4 | 99.4 | 37,797 | 35,893 | 103.5 | 98.3 | — 5.0 |
| Appalachian Dist. 2 | 97 | 95 | 74.8 | 104.9 | 77.1 | 110.4 | 30,221 | 34,924 | 82.8 | 95.7 | +15.6 |
| Ill., Ind., Ky. | 1,516 | 1,534 | 1,341.4 | 1,470.5 | 88.5 | 95.9 | 465,640 | 499,382 | 1,275.7 | 1,368.2 | + 7.3 |
| Okla., Kans., Mo. | 733 | 763 | 644.5 | 733.9 | 87.9 | 96.2 | 219,322 | 245,921 | 600.9 | 673.7 | +12.1 |
| Texas Inland | 291 | 294 | 239.0 | 265.0 | 82.1 | 90.1 | 86,974 | 92,733 | 238.3 | 254.0 | + 6.6 |
| Texas Gulf Coast | 1,937 | 1,982 | 1,797.1 | 1,889.6 | 92.8 | 95.3 | 616,458 | 670,503 | 1,688.9 | 1,837.0 | + 8.8 |
| Louisiana Gulf Coast | 687 | 690 | 606.0 | 694.3 | 88.2 | 100.6 | 208,986 | 239,321 | 572.6 | 655.7 | +14.5 |
| Ark., and La. Inland | 98 | 98 | 88.3 | 94.5 | 90.1 | 96.4 | 32,045 | 33,271 | 87.8 | 91.2 | + 3.9 |
| New Mexico | 23 | 26 | 20.3 | 20.5 | 88.3 | 78.8 | 6,889 | 7,620 | 18.9 | 20.9 | +10.6 |
| Other Rocky Mountain | 281 | 294 | 247.9 | 256.1 | 88.2 | 87.1 | 86,913 | 92,926 | 238.1 | 254.6 | + 6.9 |
| California | 1,353 | 1,346 | 1,032.7 | 1,042.6 | 76.3 | 77.5 | 372,474 | 388,597 | 1,020.5 | 1,064.6 | + 4.3 |
| Total U.S. | 8,347 | 8,400 | 7,238.1 | 7,768.7 | 86.7 | 92.5 | 2,539,564 | 2,729,570 | 6,957.7 | 7,478.2 | + 7.5 |

# Here's that Outstanding Combination

## for BETTER primary cementing...

... BAKER CASING CENTRALIZERS to provide clearance for a uniform body of cement around the casing—and BAKER WALL SCRATCHERS to scratch away the mud cake and expose the formation for better bonding of the cement.

### *EFFECTIVE CENTERING*

BAKER CASING CENTRALIZERS have a balanced combination of proper spring *length*, and proper *bowed height* to provide EFFECTIVE CENTERING FORCE over the entire area to be cemented. And each spring is pre-tested and pre-set to ensure having this Vital Centering Force *at the cementing point* regardless of depth or hole deviations.

### *CONTROLLED SCRATCHING*

BAKER WALL SCRATCHERS perform a "Controlled" scratching job because the wires remain close against the casing while running in the hole and *do not damage the vital filter cake* on the way down the hole. Only when the actual "wall scratching operation" is commenced, do the overlapping wires (mounted in a strong DOUBLE shell) go to work scratching away the mud sheath and exposing the formation for *far better bonding* of the cement.

### *AVAILABLE IN EXACT TYPE AND SIZE REQUIRED*

Baker Casing Centralizers are available in either the hinged (Model "H" HINGE-LOK, Product No. 9113, illustrated) or slip-on (Model "G", Product No. 910-G) models, each with a complete range of spring-bowed heights for each casing OD—one exactly right for most casing clearance programs. Baker Model "C" Wall Scratchers are also available in either the hinged (Model "C" HINGE-LOK, Product No. 900-C, illustrated) or slip-on (Model "C" Solid Ring, Product No. 901-C) models with your choice of 2½-inch (C-25) or 4½-inch (C-45) scratcher wires. Ask your Baker Representative about this *outstanding combination* for better primary cementing.

**BAKER OIL TOOLS, INC.** • HOUSTON • LOS ANGELES • NEW YORK

# BAKER

## WALL SCRATCHERS
## CASING CENTRALIZERS

# The 84th Congress

# . . . A Vital One for the Oil Industry

**By L. DAN JONES**
Assistant General Counsel
Independent Petroleum Association
Of America

**Legislative action may set the pattern for the future. Here are the issues involved.**

THE SECOND SESSION of the 84th Congress will be a significant one for the petroleum industry. There will be up for consideration many legislative programs of general applicability which may have much to do in setting the pattern of the future petroleum industry in the U. S.

The highway program could very well have a profound effect upon the use of petroleum products for motive power. In addition, such legislative programs as international and federal aid to education, and related tax programs, will have far-reaching effects upon the national economy. All industries, particularly one so widespread throughout our economy as is oil, will be affected materially.

But no matter what action may be taken on these programs, this session will be important to the petroleum industry because of the natural gas issue, the question of depletion, imports and other matters.

**Gas Bill.** Passage of the Harris-Fulbright Bill by the Senate was most encouraging. Otherwise, the industry would have been faced with federal regulation, on a utility basis, of the producers' prices at the wellhead. This could easily have spread to oil since the two are so closely related. It would be difficult to keep one free from regulation while the other is controlled.

Even with remedial legislation such as the Harris-Fulbright Bill, the industry must undergo a readjustment. Although under this bill the FPC will have no jurisdiction over the producer and no direct control over his price, it will have indirect control. It will have control over the price paid by the purchasing pipe line company. It will have authority to prevent the purchasing pipe line from paying more than the "reasonable market price" as determined by the Commission and passing the excess in price on to the consumer.

This means that if a producer desires to sell into interstate commerce, he must be prepared to participate in the Commission's determination of "reasonable market price" or leave the matter to the Commission and others concerned. Certain types of escalation provisions in existing contracts will also be subject to review by the Commission and the producer will be faced with the burden of protecting his contract in such review proceedings.

**Depletion.** Recent developments in regard to the federal budget submitted to Congress by the President indicates that there will not be any effort this year on the part of the Administration to reduce tax rates. This perhaps lessens the possibility that depletion will become a serious issue in this Congress.

It has been the general feeling that depletion would not likely be brought up in Congress unless there was a general tax reduction which would invite an effort to make up the deficit through some other means. For several years now each time this situation arose, efforts were made to make up a portion of the deficit by reducing or eliminating depletion.

For some time now the Treasury Department has indicated it was making a study of depletion. Heretofore, on several occasions Treasury Secre-

The current 5,300-page edition of the COMPOSITE CATALOG is more complete, more useful than ever before. It's in three handy volumes, completely indexed by product and company . . . with thousands of equipment and service items cataloged for easy reference.

# THE COMPOSITE CATALOG

Published by WORLD OIL, P. O. Box 2608, Houston 1, Texas

## WHAT TO WATCH FOR IN THE 84TH CONGRESS . . .

- **GAS BILL**
  **Has passed Senate. Even with such remedial legislation, industry faces readjustment.**
- **DEPLETION**
  **Seriousness of the issue depends on any effort to cut taxes.**
- **OIL IMPORTS**
  **Administrative authority hasn't been used. Legislative action may be necessary.**
- **PUBLIC LANDS**
  **Several land bills are of general interest to oil industry.**

tary Humphrey when asked about the position of the department in regard to depletion has stated that they had the matter under study and deferred comment until the completion of their consideration of the matter.

At a recent press conference Secretary Humphrey was asked about "loopholes" in the tax law. He was then asked whether or not he included depletion as a "loophole." The Secretary was reported as replying: "I do not think depletion is a loophole. I think it definitely is not a loophole. Proper depletion is a very proper deduction and a very desirable one from the whole point of our economy."

In view of the Administration's attitude against the possibility of a tax cut this year, together with the expressed view of Secretary Humphrey concerning depletion, it appears unlikely that depletion will be subject to any organized attack during this session.

On the other hand, activities such as the recent study of the Federal Tax Policy by a Subcommittee of the Joint Committee on the Economic Report reveals that there are those who at every opportunity will attack the depletion provisions of the tax law. During the study and hearings held by the subcommittee a number of college professors condemned depletion as a preferential provision which induces a wasteful use of capital. The professors' views, being based upon purely theoretical economic arguments, did not seem to make much impact upon the majority of the subcommittee conducting the hearings. The subcommittee in its report had nothing specifically to say in regard to depletion.

But the subcommittee's report which was approved by the full committee did point out that a distinction must be made between "preferential" and "differential" tax treatment in order to recognize differences in economic circumstances. This, of course, is the situation as to depletion.

Senator Douglas, a member of the subcommittee and also chairman of the full committee, submitted supplemental views, however, in which he referred to the depletion provisions of the law as having the effect of exempting a large amount of income from taxation and "lead to a less efficient utilization of the resources of labor and capital than would be true in the absence of such a tax. This is particularly true of the oil industry."

Such attitudes show that at every opportunity there will be those who will attack depletion. This demonstrates the need for the industry to be prepared at all times to meet those attacks and to show the essentiality for the tax laws to recognize the economic peculiarities of the industry.

**Oil Imports.** Last year the incorporation of the "Defense Amendment" in the Trade Agreements Act constituted a mandate of Congress that oil imports be held to their 1954 relationship to domestic production.

The basic purpose of this amendment was the protection of industries essential to the national defense. Theretofore, the Trade Agreements Act provided relief from excessive imports based upon injury but did not give positive recognition to the defense factor. Under the law today an industry concerned with excessive imports has a choice of two avenues for relief, namely:

- The escape clause procedure based upon injury.
- The defense amendment based upon protection of industries essential to the national defense.

Domestic independent oil producers felt that the adoption of the defense amendment constituted real progress in obtaining a sound solution to the import problem. The domestic industry, being so vital to national defense, has always been the main argument against excessive imports on the defense aspect of the problem.

To date the Administration has endeavored to bring about a curtailment on oil imports through voluntary action on the part of the importing companies. It has not as yet utilized the administrative authority of the defense amendment to fix the oil import level.

The failure to do so has resulted in some feeling that further legislative action is now necessary if imports are to be prevented from continuing to increase. As yet, however, there have been no specific oil import bills introduced this session. There seems to be an attitude of patient waiting on the part of both Congress and independent producers in order to give the Administration further opportunity to take action under the defense amendment. There are, however, signs of growing impatience.

Imports are continuing to increase in volume and also in relation to production. Efforts on the part of the Administration to bring about voluntary curtailment have not brought imports within the 1954 relationship. There are signs, therefore, that unless

# Baroid Service has multiplied, too!

Most families get growin' pains now and then, and the Baroid family is no exception . . . only our family has multiplied by adding more area sales and service offices and more sales and service engineers to better serve the needs of our friends and customers.

Yes sir, Baroid service has multiplied too!

**BAROID DIVISION • NATIONAL LEAD CO.**

Main Office: P. O. Box 1675, Houston 1, Texas

AREA OFFICES

DENVER
HOUSTON
LOS ANGELES
MIDLAND
NEW ORLEANS
TULSA

and

BAROID OF CANADA, LTD., CALGARY, ALBERTA

BAROID

**BAROID**

effective curtailment of imports is forthcoming, proposed legislation may be offered to meet the problem.

The timing for any action on oil imports may be determined by the action taken by the administration in regard to its over-all trade program. The President has called upon Congress to authorize the U. S. to participate in the Organization for Trade Cooperation. This is the agency provided for in an agreement drawn up by the contracting parties to the General Agreement on Tariffs and Trade (GATT). The OTC is designed as the administrative and enforcing agency of GATT. It would be a continuing organization.

Since the GATT agreement was first formulated in 1947, Congress has refused to approve or sanction U. S. participation therein. As a result there is strong opposition in Congress against the OTC proposal. If the Administration undertakes to push the OTC proposal, it may invite proposals for protection against further encouragement of imports of specific commodities, such as oil.

**Public Lands.** There are several bills pending in Congress pertaining to the public lands which are of general interest to the petroleum industry.

S. 748, introduced by Senator Long of Louisiana, passed the Senate last year but received no action in the House. This bill would prohibit the U. S. from acquiring the mineral interests in land acquired by it except when necessary to serve the purpose for which such lands are acquired. The basic objective of this bill has long been supported by natural resource industries generally, on the basis that centralization of the ownership of mineral interests of lands, by the Federal government or otherwise, has a retarding effect upon the efforts of individuals to explore for and develop the resources of the nation. Several of the departments of the government, however, have indicated opposition to the bill, not on principle, but for various administrative and technical reasons.

Any action by the House this session would perhaps receive active opposition from these departments. In a year when the Congress is anxious to dispose of the major and essential legislation as soon as possible, the hope for passage of other legislation is dimmed especially where there is opposition such as that which has developed in regard to this proposal.

Another bill of interest to the public lands states is S. 680, introduced by Senator Barrett of Wyoming, and a similar bill, H. R. 2678, introduced by Congressman Thomson of Wyoming. In eleven western states, a large part of the lands are owned by the Federal government either as public domain or acquired lands. In addition, there is a great deal of privately owned land wherein the mineral rights have been retained by the government.

Under the Barrett-Thomson bills, 90 percent of the mineral resource income would be returned to the state with the remaining 10 percent going to the Federal government to cover cost of administration, the state income to be earmarked for public education and maintenance of highways.

These bills received no action during the past session of Congress. In view of the heavy load of "must" legislation to be disposed of this session, together with the desire of Congress to adjourn as early as possible, it would appear unlikely that these bills could clear the entire legislative process during the present session.

S. 22, introduced by Senator Williams of Delaware, now pending in Congress, would require competitive bidding for leases of unexplored or wildcat lands. Under present law, leases on wildcat lands are granted to the first applicant. Many segments of the petroleum industry, particularly the independent producers, have long opposed the application of competitive bidding to wildcat lands. For the past several congresses Senator Williams has introduced similar legislation. This bill received no action last year and in view of the controversial nature thereof, it would appear unlikely that it would be acted upon by Congress this session.

A matter that might receive congressional consideration this year is that pertaining to fractional assignments of oil and gas leases involving the public lands. For some time the Department of the Interior has indicated a desire to develop some means of preventing "fly-by-night" brokers from advertising in various means the sale of 40-acre interests in oil and gas leases.

This practice has been a burden to legitimate oil and gas operators on the public lands and has unnecessarily increased the paper work of the Department of the Interior, thereby slowing up the processing of oil and gas leases on the public lands.

To date, no legislation has been introduced on this matter but the Department of the Interior is interested in developing a solution to this problem. This most likely would require legislation. —**The End**

## Suppliers Get a Pat on the Back

THE OIL equipment industry has the best record of any industry in prompt submission of information on critical materials to the U. S. government. This interesting statement comes from Ted Madsen, assistant director of oil field machinery, for the Agriculture, Construction, Mining and Oil Field Equipment division of the Business and Defense Services Administration, Department of Commerce.

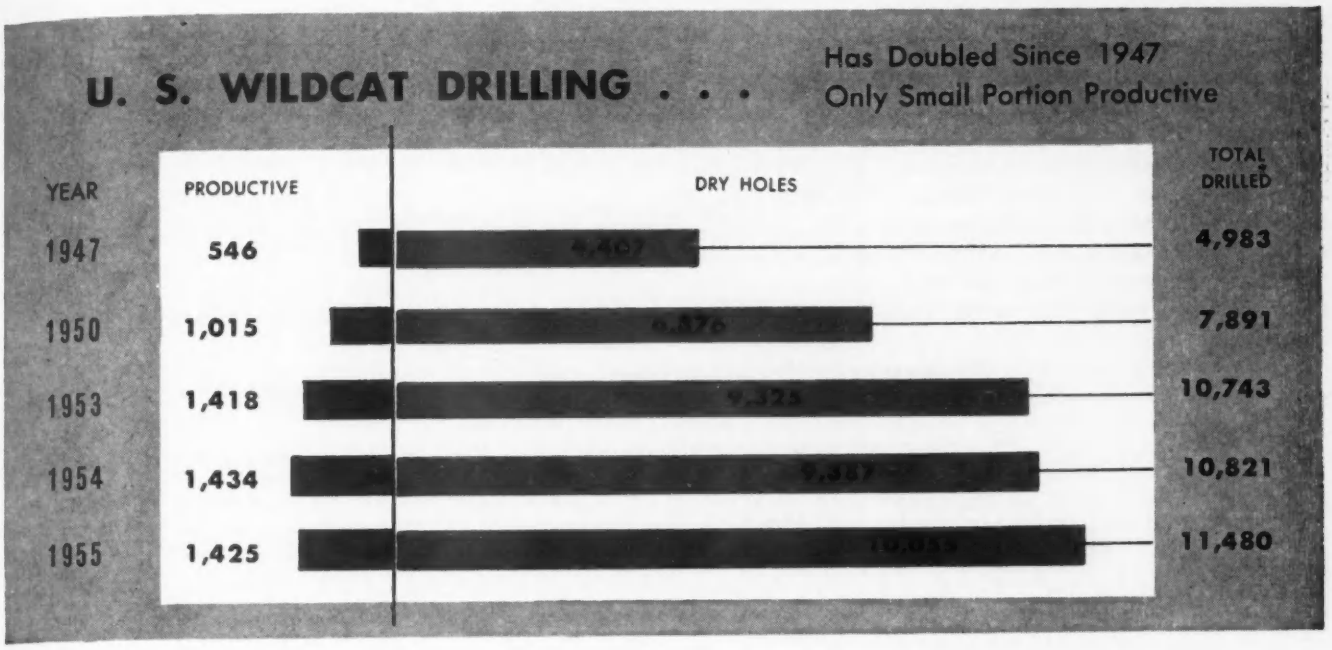
New requests covering 1955 operations now are being mailed out to manufacturers of oil field equipment by the division.

At a meeting of the Petroleum Equipment Suppliers Association with officials of the Business and Defense Service Administration at Murray Bay, Canada, two years ago, members of the PESA pledged its cooperation in providing the government with information on such critical products as copper, aluminum and steel used in the manufacture of their products annually.

A questionnaire was devised which would go to all manufacturers of oil drilling and production equipment regardless of their membership in PESA.

According to Madsen, out of 476 concerns on the list, 469 replied promptly. It was later found that five were out of business and two which had failed to reply promptly came through with their information making it 100 percent.

The purpose of the questionnaire is to put the government in a position to know how much critical material shall be allocated to the oil industry to drill the number of wells required for national defense in the event of war.




# Wildcat Drilling . . . Record 11,767 wildcats due to be drilled in '56.

U. S. wildcat activity will set new records in 1956, repeating a yearly upward trend that started in 1944. According to WORLD OIL estimates, 11,767 wildcats will be drilled this year—a 2.5 percent increase over 1955.

Last year, 11,480 wildcats were drilled, 5.7 percent more than the 1954 record. This represents a 171 percent increase over the 4242 wildcats drilled in 1946.

Although a record number of wildcats was drilled in 1955, total new field discoveries remained about the same. New oil, gas and distillate fields totaled 1425 in 1955, only 9 less than the previous year. To illustrate the accelerated growth in wildcat activity —there were 3½ times as many new fields opened in 1955 than in 1946 when only 412 were reported.

A total of 1070 new oil fields were opened in 1955, an increase of 14 over 1954. New distillate fields increased by 5 over the pervious year. On the other hand, new gas fields dropped 10.8 percent to 232 compared with the 260 new discoveries in 1954.

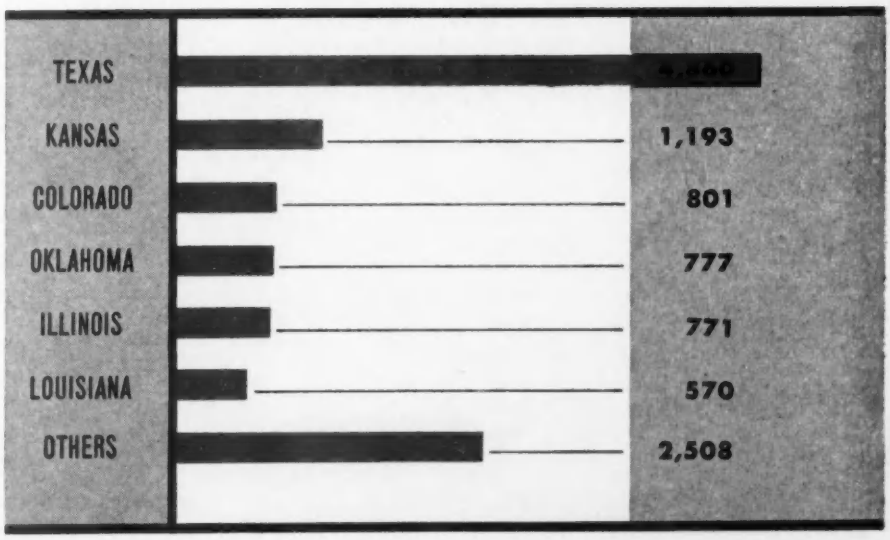
The ratio of wildcats to all new wells drilled showed a slight decrease —20.8 percent last year compared to 21 percent in 1954. Wildcats represented 22.3 percent of the total in 1953.

Of the six top oil producing states, four showed increases in wildcat activity during 1955. Kansas had the biggest upswing in activity with 1193 wildcats, 275 more than in 1954. Illinois reported 771 wildcats, an increase of 151; California had 388 wildcats, up 100; Louisiana had 570, an increase of 100 over the previous year.

Texas, with more wildcats (4860) than the other five top producing states combined, showed a decrease of 32 from the 1954 total of 4892. Oklahoma with 777 wildcats dropped 89 from the total drilled in 1954.

Four states had significant increases

## WHERE U. S. WILDCATS WERE DRILLED IN 1955



in wildcat activity last year. Topping the list is Colorado with 801 wildcats —153 more than were drilled during the previous year. Nebraska showed the biggest percent increase with 386 wildcats, a 100 percent jump over the 193 reported the year before. Arkansas reported considerable wildcat activity with 114—an increase of 37 over 1954. Montana showed the same total increase with 153 wildcats drilled in 1955 compared to 116 in 1954.

Predictions for 1956 indicate new trends for area wildcat activity. Louisiana, which reported a substantial 18 percent gained in wildcats drilled last year will have another record total with 655 wildcats for a 14.9 percent increase. Kansas, which led the top wildcatting states with a 23 percent increase in 1954, will drop off to a 3.9 percent increase or 1240 rank wildcats. Texas will show a moderate 3.6 percent increase to 5035 wildcats, and Oklahoma will drill 13 more wildcats than last year.

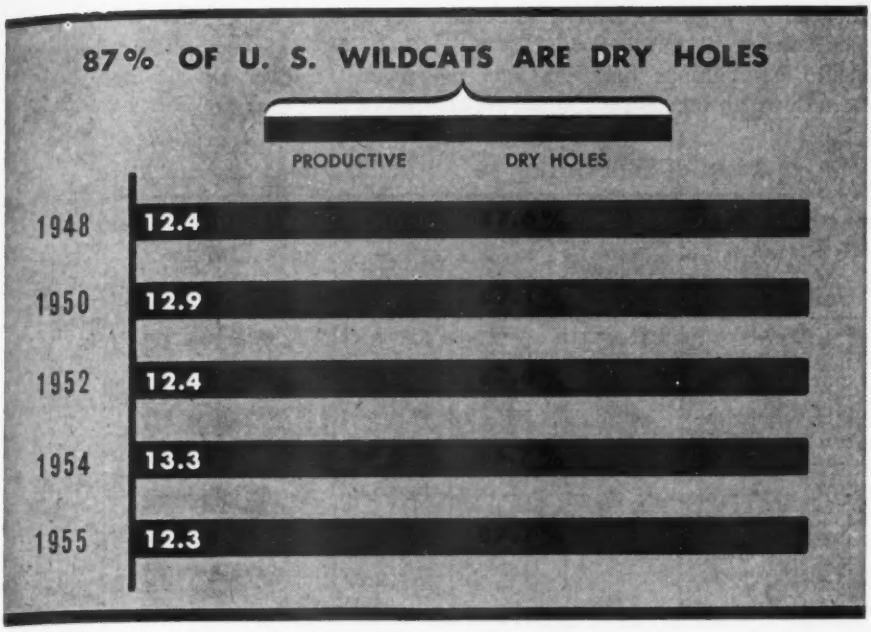
Top producing states expected to have decreases in wildcatting activity include Illinois which will drop 8.9 percent to 710 wildcats and California where a slight decrease of 3 wildcats is expected for a total of 385.

## Results of Wildcat Drilling in U. S., by Years

| | PRODUCTIVE WILDCATS | | | | | | | | | | | | DRY WILDCATS | | | TOTAL WILDCATS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OIL | | | DISTILLATE | | | GAS | | | TOTAL PRODUCTIVE | | | | | | | | |
| YEAR | No. | Footage | Avge. Depth | No. | Footage | Avge. Depth | No. | Footage | Avge. Depth | No. | Footage | Avge. Depth | No. | Footage | Avge Depth | No. | Footage | Avge. Depth |
| 1937 | 203 | 831,123 | 4094 | 3 | 19,377 | 6459 | 33 | 77,389 | 2345 | 239 | 927,889 | 3882 | 1,943 | 7,173,550 | 3692 | 2,182 | 8,101,439 | 3713 |
| 1938 | 229 | 944,455 | 4124 | 4 | 23,657 | 5914 | 31 | 102,440 | 3305 | 264 | 1,070,552 | 4055 | 2,179 | 7,012,901 | 3218 | 2,443 | 8,083,453 | 3309 |
| 1939 | 224 | 782,289 | 3492 | 1 | 7,999 | 7999 | 33 | 103,450 | 3135 | 258 | 893,738 | 3461 | 2,488 | 7,764,816 | 3121 | 2,746 | 8,658,554 | 3153 |
| 1940 | 262 | 957,167 | 3653 | 2 | 12,792 | 6396 | 46 | 122,439 | 2662 | 310 | 1,032,398 | 3524 | 2,672 | 8,649,828 | 3237 | 2,982 | 9,742,226 | 3267 |
| 1941 | 301 | 1,165,966 | 3874 | 3 | 23,505 | 7835 | 58 | 177,974 | 3069 | 362 | 1,367,445 | 3777 | 3,047 | 9,651,013 | 3167 | 3,409 | 11,018,458 | 3232 |
| 1942 | 288 | 1,199,382 | 4165 | 13 | 121,620 | 9355 | 48 | 167,428 | 3488 | 349 | 1,488,430 | 4265 | 2,652 | 9,320,691 | 3515 | 3,001 | 10,809,121 | 3602 |
| 1943 | 276 | 1,232,396 | 4465 | 15 | 140,564 | 9371 | 56 | 212,814 | 3800 | 347 | 1,585,774 | 4570 | 2,951 | 10,702,429 | 3627 | 3,298 | 12,288,203 | 3726 |
| 1944 | 326 | 1,422,250 | 4363 | 32 | 250,228 | 7820 | 102 | 417,944 | 4097 | 460 | 2,090,422 | 4544 | 3,425 | 13,470,846 | 3933 | 3,885 | 15,561,268 | 4005 |
| 1945 | 317 | 1,503,763 | 4744 | 30 | 269,915 | 8997 | 113 | 486,529 | 4306 | 460 | 2,260,207 | 4913 | 3,486 | 14,504,642 | 4161 | 3,946 | 16,764,849 | 4249 |
| 1946 | 308 | 1,359,787 | 4415 | 29 | 264,441 | 9119 | 75 | 272,564 | 3634 | 412 | 1,896,792 | 4604 | 3,830 | 14,399,824 | 3760 | 4,242 | 16,296,616 | 3842 |
| 1947 | 436 | 1,999,100 | 4585 | 44 | 352,691 | 8016 | 96 | 407,038 | 4198 | 576 | 2,751,829 | 4783 | 4,407 | 17,068,382 | 3872 | 4,983 | 19,823,211 | 3978 |
| 1948 | 610 | 2,760,127 | 4525 | 70 | 626,026 | 8943 | 112 | 514,990 | 4598 | 792 | 3,901,143 | 4926 | 5,618 | 22,227,790 | 3957 | 6,410 | 26,128,933 | 4076 |
| 1949 | 668 | 3,027,759 | 4533 | 69 | 644,454 | 9340 | 130 | 626,058 | 4816 | 867 | 4,298,271 | 4958 | 5,914 | 22,044,695 | 3728 | 6,781 | 26,342,966 | 3885 |
| 1950 | 811 | 3,607,484 | 4448 | 67 | 572,807 | 8549 | 137 | 679,851 | 4962 | 1,015 | 4,860,142 | 4788 | 6,876 | 25,882,014 | 3764 | 7,891 | 30,742,156 | 3896 |
| 1951 | 992 | 4,767,425 | 4806 | 62 | 564,243 | 9101 | 172 | 937,257 | 5449 | 1,226 | 6,268,925 | 5113 | 8,552 | 34,526,359 | 4037 | 9,778 | 40,795,284 | 4172 |
| 1952 | 982 | 4,751,818 | 4839 | 111 | 1,038,256 | 9354 | 174 | 924,735 | 5315 | 1,267 | 6,714,809 | 5300 | 8,972 | 39,430,757 | 4395 | 10,239 | 46,145,566 | 4507 |
| 1953 | 1,062 | 5,322,266 | 5012 | 97 | 833,326 | 8591 | 259 | 1,326,976 | 5123 | 1,418 | 7,482,568 | 5277 | 9,325 | 41,551,971 | 4456 | 10,743 | 49,034,539 | 4564 |
| 1954 | 1,056 | 5,525,392 | 5232 | 118 | 997,846 | 8456 | 260 | 1,384,545 | 5325 | 1,434 | 7,907,783 | 5514 | 9,387 | 42,227,607 | 4499 | 10,821 | 50,135,390 | 4633 |
| 1955 | 1,070 | 5,613,913 | 5247 | 123 | 1,087,452 | 8841 | 232 | 1,153,496 | 4972 | 1,425 | 7,854,861 | 5512 | 10,055 | 47,375,050 | 4712 | 11,480 | 55,229,911 | 4811 |

## Results of Wildcat Drilling in U. S. in 1955, by States

| | PRODUCTIVE WILDCATS | | | | | | | | | | | | DRY WILDCATS | | | TOTAL WILDCATS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OIL | | | DISTILLATE | | | GAS | | | TOTAL PRODUCTIVE | | | | | | | | |
| STATE or DISTRICT | No. | Footage | Avge. Depth | No. | Footage | Avge. Depth | No. | Footage | Avge. Depth | No. | Footage | Avge. Depth | No. | Footage | Avge. Depth | No. | Footage | Avge. Depth |
| Alabama | | | | | | | | | | | | | 41 | 193,382 | 4717 | 41 | 193,382 | 4717 |
| Arizona | 1 | 6,382 | 6382 | | | | | | | 1 | 6,382 | 6382 | 4 | 16,136 | 4034 | 5 | 22,518 | 4504 |
| Arkansas | 9 | 33,011 | 3668 | | | | 2 | 3,828 | 1914 | 11 | 36,839 | 3349 | 140 | 511,302 | 3652 | 151 | 548,141 | 3630 |
| California | 18 | 129,798 | 7211 | | | | 6 | 29,426 | 4903 | 24 | 159,224 | 6634 | 364 | 1,890,587 | 5194 | 388 | 2,049,811 | 5283 |
| Colorado | 42 | 239,773 | 5709 | 1 | 6,839 | 6839 | 23 | 118,430 | 5149 | 66 | 365,042 | 5531 | 735 | 3,983,203 | 5419 | 801 | 4,348,245 | 5429 |
| Florida | | | | | | | | | | | | | 25 | 167,560 | 6702 | 25 | 167,560 | 6702 |
| Georgia | | | | | | | | | | | | | 2 | 9,305 | 4653 | 2 | 9,305 | 4653 |
| Idaho | | | | | | | 1 | 4,032 | 4032 | 1 | 4,032 | 4032 | 2 | 7,305 | 3653 | 3 | 11,337 | 3779 |
| Illinois | 32 | 74,174 | 2318 | | | | 3 | 2,751 | 917 | 35 | 76,925 | 2198 | 736 | 1,650,816 | 2243 | 771 | 1,727,741 | 2241 |
| Indiana | 9 | 8,975 | 997 | | | | 1 | 810 | 810 | 10 | 9,785 | 979 | 175 | 261,352 | 1493 | 185 | 271,137 | 1466 |
| Kansas | 148 | 586,012 | 3960 | | | | 35 | 159,303 | 4552 | 183 | 745,315 | 4073 | 1,010 | 4,630,508 | 4585 | 1,193 | 5,375,823 | 4506 |
| Kentucky | 13 | 19,832 | 1526 | | | | 2 | 1,693 | 847 | 15 | 21,525 | 1435 | 100 | 140,347 | 1403 | 115 | 161,872 | 1408 |
| Louisiana | 40 | 431,245 | 10781 | 24 | 294,864 | 12286 | 8 | 85,800 | 10725 | 72 | 811,909 | 11277 | 498 | 4,301,879 | 8638 | 570 | 5,113,788 | 8972 |
| North Louisiana | 6 | 49,723 | 8287 | 3 | 24,930 | 8310 | 2 | 14,229 | 7115 | 11 | 88,882 | 8080 | 210 | 1,084,917 | 5166 | 221 | 1,173,799 | 5311 |
| South Louisiana | 34 | 381,522 | 11221 | 21 | 269,934 | 12851 | 6 | 71,571 | 11929 | 61 | 723,027 | 11853 | 288 | 3,216,962 | 11170 | 349 | 3,939,989 | 11289 |
| Michigan | 5 | 11,679 | 2336 | | | | 2 | 4,684 | 2342 | 7 | 16,363 | 2338 | 190 | 563,288 | 2965 | 197 | 579,651 | 2942 |
| Mississippi | 7 | 45,837 | 6548 | 1 | 15,209 | 15209 | | | | 8 | 61,046 | 7631 | 184 | 1,220,542 | 6633 | 192 | 1,281,588 | 6675 |
| Missouri | | | | | | | | | | | | | 18 | 10,441 | 580 | 18 | 10,441 | 580 |
| Montana | 10 | 71,818 | 7182 | 2 | 7,558 | 3779 | 1 | 4,004 | 4004 | 13 | 83,380 | 6414 | 140 | 653,175 | 4666 | 153 | 736,555 | 4814 |
| Nebraska | 38 | 225,434 | 5932 | | | | 1 | 5,661 | 5661 | 39 | 231,095 | 5926 | 347 | 1,890,637 | 5449 | 386 | 2,121,732 | 5497 |
| Nevada | | | | | | | | | | | | | 4 | 29,028 | 7257 | 4 | 29,028 | 7257 |
| New Mexico | 35 | 293,034 | 8372 | 2 | 21,499 | 10750 | 29 | 120,292 | 4148 | 66 | 434,825 | 6589 | 143 | 652,741 | 4565 | 209 | 1,087,566 | 5204 |
| New York | | | | | | | 2 | 7,510 | 3755 | 2 | 7,510 | 3755 | | | | 2 | 7,510 | 3755 |
| North Dakota | 5 | 31,602 | 6320 | | | | | | | 5 | 31,602 | 6320 | 62 | 346,839 | 5593 | 67 | 378,441 | 5648 |
| Ohio | | | | | | | 1 | 5,887 | 5887 | 1 | 5,887 | 5887 | 15 | 50,230 | 3349 | 16 | 56,117 | 3507 |
| Oklahoma | 101 | 491,624 | 4868 | 13 | 80,868 | 6221 | 22 | 109,473 | 4976 | 136 | 681,965 | 5014 | 641 | 2,658,920 | 4148 | 777 | 3,340,885 | 4300 |
| Oregon | | | | | | | | | | | | | 1 | 7,101 | 7101 | 1 | 7,101 | 7101 |
| Pennsylvania | | | | | | | 1 | 8,317 | 8317 | 1 | 8,317 | 8317 | 2 | 16,393 | 8197 | 3 | 24,710 | 8237 |
| South Dakota | | | | | | | | | | | | | 12 | 52,476 | 4373 | 12 | 52,476 | 4373 |
| Texas | 527 | 2,746,258 | 5211 | 80 | 660,615 | 8258 | 74 | 398,714 | 5388 | 681 | 3,805,587 | 5588 | 4,179 | 20,146,735 | 4821 | 4,860 | 23,952,322 | 4928 |
| Dist. 1: S. Central | 23 | 75,641 | 3289 | 4 | 39,380 | 9845 | 3 | 16,006 | 5335 | 30 | 131,027 | 4368 | 405 | 1,304,241 | 3220 | 435 | 1,435,268 | 3299 |
| Dist. 2: Middle Gulf | 17 | 114,451 | 6732 | 14 | 112,396 | 8028 | 13 | 67,424 | 5186 | 44 | 294,271 | 6688 | 269 | 1,729,760 | 6430 | 313 | 2,024,031 | 6467 |
| Dist. 3: Upper Gulf | 17 | 137,265 | 8074 | 26 | 234,456 | 9018 | 9 | 61,707 | 7190 | 52 | 436,428 | 8393 | 411 | 3,288,120 | 8000 | 463 | 3,724,548 | 8044 |
| Dist. 4: L. Gulf-S.W. | 31 | 186,596 | 6019 | 21 | 167,264 | 7965 | 11 | 62,131 | 5648 | 63 | 415,991 | 6603 | 407 | 2,239,759 | 5503 | 470 | 2,655,750 | 5651 |
| Dist. 5: East Central | 3 | 22,667 | 7556 | 3 | 25,475 | 8492 | | | | 6 | 48,142 | 8024 | 141 | 551,317 | 3910 | 147 | 599,459 | 4078 |
| Dist. 6: Northeast | 4 | 8,978 | 2245 | 3 | 22,107 | 7369 | 1 | 9,714 | 9714 | 8 | 40,799 | 5100 | 191 | 1,053,144 | 5518 | 199 | 1,093,943 | 5197 |
| Dist. 7-B: North Central | 158 | 614,909 | 3892 | 1 | 5,346 | 5346 | 14 | 50,839 | 3631 | 173 | 671,094 | 3879 | 934 | 3,092,775 | 3311 | 1,107 | 3,763,869 | 3400 |
| Dist. 7-C: West Central | 54 | 293,875 | 5442 | | | | 11 | 63,521 | 5775 | 65 | 357,396 | 5498 | 291 | 1,463,799 | 5030 | 356 | 1,821,195 | 5116 |
| Dist. 8: West | 85 | 575,091 | 6766 | | | | 2 | 8,948 | 4474 | 87 | 584,039 | 6713 | 443 | 2,739,585 | 6184 | 530 | 3,323,624 | 6271 |
| Dist. 9: North | 131 | 677,015 | 5169 | 2 | 13,645 | 6823 | 8 | 44,399 | 5550 | 141 | 735,139 | 5214 | 640 | 2,345,578 | 3665 | 781 | 3,080,717 | 3945 |
| Dist. 10: Panhandle | 4 | 39,670 | 9923 | 6 | 40,546 | 6758 | 2 | 11,025 | 5513 | 12 | 91,261 | 7605 | 47 | 338,657 | 7205 | 59 | 429,918 | 7287 |
| Utah | 7 | 35,431 | 5062 | | | | 7 | 29,713 | 4249 | 14 | 65,174 | 4655 | 72 | 301,498 | 4187 | 86 | 366,672 | 4264 |
| West Virginia | | | | | | | 8 | 32,563 | 4070 | 8 | 32,563 | 4070 | 13 | 65,453 | 5035 | 21 | 98,016 | 4667 |
| Wyoming | 23 | 131,994 | 5739 | | | | 3 | 20,575 | 6858 | 26 | 152,569 | 5868 | 200 | 945,871 | 4729 | 226 | 1,098,440 | 4860 |
| U. S. Total, 1955 | 1,070 | 5,613,913 | 5247 | 123 | 1,087,452 | 8841 | 232 | 1,153,496 | 4972 | 1,425 | 7,854,861 | 5512 | 10,055 | 47,375,050 | 4712 | 11,480 | 55,229,911 | 4811 |




# Wildcatting Success . . . 1 out of every 8 wildcats drilled in U. S. continues to find production.

TWELVE PERCENT or 1 out of every 8 wildcats drilled in the U. S. continues to find production although drillers set an all-time record in number of wildcats drilled last year.

Of the 11,480 wildcats drilled in 1955, 1425 were successful producers. This is a slightly lower success record than was reported for the previous two years. Even so, it was considerably better than in any year prior to 1948.

The 1955 decline came after two of the most successful wildcatting years in history. During 1954, a record number of 1434 successful wildcats were drilled for a 1-7½ ratio. The same ratio of success was reported in 1953 when 1418 of the 9325 wildcats drilled paid out.

**Oklahoma Leads.** Of the seven states reporting the greatest amount of wildcat activity last year, Oklahoma had the most outstanding percentage of successes with 777 wildcats, of which 136 or 17.5 percent were producers. Kansas was next with 183 producers—15.3 percent of the 1010 wildcats drilled.

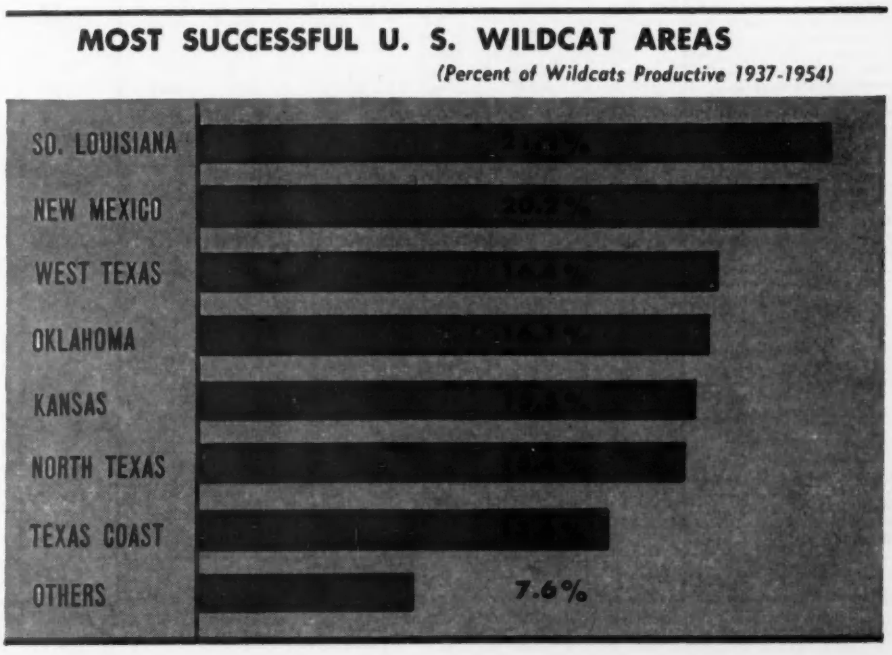
There were 4860 wildcats drilled in Texas; 14.0 percent or 681 of the wells were producers. The Panhandle area had the best record, 12 successes or 20.3 percent of the 59 wildcats drilled. The West Central area reported 65 producers, 18.3 percent of the total; and North Texas had 141 producers, 18.1 percent of the total. In the North Central area where the greatest wildcatting activity was reported, 1107 wildcats were drilled, of which 173 were producers for a success percentage of 15.6.

Of the 570 wildcats drilled in Louisiana, 72 or 12.6 percent were successful. Nebraska reported 10.1 percent of its 386 wildcats as producers. In Colorado, 8.2 percent of the wildcats were successful out of 801; and California reported 6.2 percent of its 338 wildcats were producers.

**South Louisiana High.** Although Louisiana had a 12.6 percent success in wildcatting—the southern area, where most of the activity was reported, had 17.5 percent of its 349 wildcats pay out as producers.

South Louisiana has led the nation in wildcat success for the past 18 years. In fact, the area's record of one producer for every 5.7 wildcats drilled last year tied Oklahoma's top ranking ratio. This compares with South Louisiana's 18-year average of 1 to 4.7.

Although not listed among the top states in wildcat activity, New Mexico had one of the country's outstanding success ratios. It topped both Oklahoma and South Louisiana with an amazing success percentage of 31.6 percent, or 66 producers out of 209 wildcats drilled. This means there was one producer brought in for every 3.2 wildcats drilled. New Mexico's 18-year ratio average is one success



for every 4.9 wildcats, second only to South Louisiana.

West Texas is third in 18-year averages with one success for every 6.1 wildcats drilled. The nation's leader last year, Oklahoma, is fourth with a ratio of 1 to 6.2. Kansas is close behind with a 1 to 6.5 success ratio.

These success ratios are all far above the national average of one producer for every 8.3 wildcats drilled since 1937. In comparison, the U. S. success ratio last year was 1 to 8.

**Ratio Increases.** It is significant to note that the ratio of successful wildcats to total number drilled has increased in the past 18 years—despite the fact that the annual total of wildcats has increased fivefold.

For example, in 1937 there were only 2182 wildcats drilled, yet the relatively small number of 239 successful completions held the success ratio down to one successful producer for every 9.1 tries. Last year's ratio of 1 to 8 was accomplished in a year when 11,480 wildcats were drilled, more than ever before.

### Ratio of Wildcatting to All Drilling and Success Rate

| YEAR | Total New Wells Drilled for Oil or Gas* | TOTAL | | | PRODUCTIVE | |
|---|---|---|---|---|---|---|
| | | Number | Percent of All Wells | Dry | Number | Percent of All Strict Wildcats |
| 1937 | 32,474 | 2,182 | 6.7 | 1,943 | 239 | 11.0 |
| 1938 | 27,764 | 2,443 | 8.8 | 2,179 | 264 | 10.8 |
| 1939 | 26,654 | 2,746 | 10.3 | 2,488 | 258 | 9.4 |
| 1940 | 29,161 | 2,982 | 10.2 | 2,672 | 210 | 10.4 |
| 1941 | 30,149 | 3,409 | 11.3 | 3,047 | 362 | 10.6 |
| 1942 | 19,729 | 3,001 | 15.2 | 2,652 | 349 | 11.6 |
| 1943 | 18,641 | 3,298 | 17.7 | 2,951 | 347 | 10.5 |
| 1944 | 23,733 | 3,885 | 16.4 | 3,425 | 460 | 11.8 |
| 1945 | 24,482 | 3,946 | 16.1 | 3,486 | 460 | 11.7 |
| 1946 | 28,145 | 4,242 | 15.1 | 3,830 | 412 | 9.7 |
| 1947 | 31,084 | 4,983 | 16.0 | 4,407 | 576 | 11.6 |
| 1948 | 37,448 | 6,410 | 17.1 | 5,618 | 792 | 12.4 |
| 1949 | 37,812 | 6,781 | 17.9 | 5,914 | 867 | 12.8 |
| 1950 | 42,173 | 7,891 | 18.7 | 6,876 | 1,015 | 12.9 |
| 1951 | 45,996 | 9,778 | 21.3 | 8,552 | 1,226 | 12.5 |
| 1952 | 45,275 | 10,239 | 22.6 | 8,972 | 1,267 | 12.4 |
| 1953 | 48,242 | 10,743 | 22.3 | 9,325 | 1,418 | 13.2 |
| 1954 | 52,419 | 10,821 | 21.0 | 9,387 | 1,434 | 13.3 |
| 1955 | 55,150 | 11,480 | 20.8 | 10,055 | 1,425 | 12.3 |

* Not including service wells.

### Ratio of Wildcatting to All Drilling and Proportion of Wildcats Discovering New Fields, by States, 1937-1955

| STATE or DISTRICT | EIGHTEEN YEARS, 1937-1954 | | | | | | YEAR, 1955 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total New Wells Drilled for Oil or Gas† | *STRICT WILDCATS | | | | | Total New Wells Drilled for Oil or Gas† | *STRICT WILDCATS | | | | |
| | | TOTAL | | | PRODUCTIVE | | | TOTAL | | | PRODUCTIVE | |
| | | Number | Percent of All Wells | Dry | Number | Percent of All Strict Wildcats | | Number | Percent of All Wells | Dry | Number | Percent of All Strict Wildcats |
| Alabama | 568 | 390 | 68.7 | 383 | 7 | 1.8 | 43 | 41 | 95.3 | 41 | .... | .... |
| Arizona | 63 | 63 | 100.0 | 61 | 2 | 3.2 | 5 | 5 | 100.0 | 4 | 1 | 20.0 |
| Arkansas | 5,536 | 1,347 | 24.3 | 1,234 | 113 | 8.4 | 783 | 151 | 19.4 | 140 | 11 | 7.3 |
| California | 32,741 | 4,600 | 14.0 | 4,336 | 264 | 5.7 | 2,467 | 388 | 15.7 | 364 | 24 | 6.2 |
| Colorado | 3,827 | 1,670 | 43.6 | 1,493 | 177 | 10.6 | 1,520 | 801 | 53.4 | 735 | 66 | 8.2 |
| Florida | 233 | 215 | 92.7 | 213 | 2 | 0.9 | 26 | 25 | 96.2 | 25 | .... | .... |
| Georgia | 63 | 63 | 100.0 | 63 | ..... | .... | 2 | 2 | 100.0 | 2 | .... | .... |
| Idaho | 13 | 13 | 100.0 | 13 | ..... | .... | 3 | 3 | 100.0 | 2 | 1 | 33.3 |
| Illinois | 44,398 | 9,295 | 20.9 | 8,781 | 514 | 5.5 | 3,903 | 771 | 19.8 | 736 | 35 | 4.5 |
| Indiana | 12,922 | 3,796 | 29.4 | 3,476 | 320 | 8.4 | 632 | 185 | 29.3 | 175 | 10 | 5.4 |
| Iowa | 23 | 23 | 100.0 | 23 | ..... | .... | ..... | ..... | .... | ..... | .... | .... |
| Kansas | 48,205 | 9,135 | 19.0 | 7,718 | 1,417 | 15.5 | 4,647 | 1,193 | 25.7 | 1,010 | 183 | 15.3 |
| Kentucky | 18,814 | 1,895 | 10.1 | 1,700 | 195 | 10.3 | 1,714 | 115 | 6.7 | 100 | 15 | 13.0 |
| Louisiana | 31,523 | 4,461 | 14.2 | 3,825 | 636 | 14.3 | 4,147 | 570 | 13.7 | 498 | 72 | 12.6 |
| North Louisiana | 16,486 | 2,344 | 14.2 | 2,157 | 187 | 8.0 | 2,150 | 221 | 11.0 | 210 | 11 | 5.0 |
| South Louisiana | 15,037 | 2,117 | 14.1 | 1,668 | 449 | 21.2 | 1,997 | 349 | 16.2 | 288 | 61 | 17.5 |
| Maryland | 98 | 12 | 12.2 | 9 | 3 | 25.0 | 7 | ..... | .... | ..... | .... | .... |
| Michigan | 14,673 | 4,699 | 32.0 | 4,364 | 335 | 7.1 | 512 | 197 | 38.5 | 190 | 7 | 3.6 |
| Mississippi | 4,772 | 1,836 | 38.5 | 1,730 | 106 | 5.8 | 461 | 192 | 41.6 | 184 | 8 | 4.2 |
| Missouri | 954 | 259 | 27.1 | 255 | 4 | 1.5 | 25 | 18 | 72.0 | 18 | .... | .... |
| Montana | 4,777 | 702 | 14.7 | 622 | 80 | 11.4 | 363 | 153 | 42.1 | 140 | 13 | 8.5 |
| Nebraska | 1,689 | 879 | 52.0 | 784 | 95 | 10.8 | 847 | 386 | 45.6 | 347 | 39 | 10.1 |
| Nevada | 32 | 32 | 100.0 | 31 | 1 | 3.1 | 6 | 4 | 66.7 | 4 | .... | .... |
| New Jersey | 1 | 1 | 100.0 | 1 | ..... | .... | ..... | ..... | .... | ..... | .... | .... |
| New Mexico | 11,614 | 1,523 | 13.1 | 1,216 | 307 | 20.2 | 1,726 | 209 | 12.1 | 143 | 66 | 31.6 |
| New York | 13,815 | 112 | 0.8 | 107 | 5 | 4.5 | 223 | 2 | 0.9 | ..... | 2 | 100.0 |
| North Carolina | 19 | 19 | 100.0 | 19 | ..... | .... | ..... | ..... | .... | ..... | .... | .... |
| North Dakota | 695 | 252 | 36.3 | 234 | 18 | 7.1 | 253 | 67 | 26.5 | 62 | 5 | 7.5 |
| Ohio | 19,891 | 469 | 2.4 | 418 | 51 | 10.9 | 1,214 | 16 | 1.3 | 15 | 1 | 6.3 |
| Oklahoma | 64,065 | 8,294 | 12.9 | 6,959 | 1,335 | 16.1 | 7,476 | 777 | 10.4 | 641 | 136 | 17.5 |
| Oregon | 14 | 14 | 100.0 | 14 | ..... | .... | 1 | 1 | 100.0 | 1 | .... | .... |
| Pennsylvania | 32,828 | 165 | 0.5 | 125 | 40 | 24.2 | 784 | 3 | 0.4 | 2 | 1 | 33.3 |
| South Carolina | 7 | 7 | 100.0 | 7 | ..... | .... | ..... | ..... | .... | ..... | .... | .... |
| South Dakota | 91 | 86 | 94.5 | 85 | 1 | 1.2 | 12 | 12 | 100.0 | 12 | .... | .... |
| Tennessee | 627 | 337 | 53.7 | 316 | 21 | 6.2 | ..... | ..... | .... | ..... | .... | .... |
| Texas | 210,084 | 41,229 | 19.6 | 35,554 | 5,675 | 13.8 | 19,831 | 4,860 | 24.5 | 4,179 | 681 | 14.0 |
| Dist. 1: South Central | 7,919 | 3,142 | 39.7 | 2,931 | 211 | 6.7 | 1,772 | 435 | 24.5 | 405 | 30 | 6.9 |
| Dist. 2: Middle Gulf | [1] | [1] | .... | [1] | [1] | .... | 823 | 313 | 38.0 | 269 | 44 | 14.1 |
| Dist. 3: Upper Gulf | 20,711 | 3,929 | 19.0 | 3,409 | 520 | 13.2 | 1,787 | 463 | 25.9 | 411 | 52 | 11.2 |
| Dist. 4: L. Gulf-S.W. | 36,597 | 8,650 | 23.6 | 7,457 | 1,193 | 13.8 | 1,339 | 470 | 35.1 | 407 | 63 | 13.4 |
| Dist. 5: East Central | [2] | [2] | .... | [2] | [2] | .... | 281 | 147 | 52.3 | 141 | 6 | 4.1 |
| Dist. 6: Northeast | 17,809 | 2,905 | 16.3 | 2,696 | 209 | 7.2 | 752 | 199 | 26.5 | 191 | 8 | 4.0 |
| Dist. 7-B: N. Central | [3] | [3] | .... | [3] | [3] | .... | 3,124 | 1,107 | 35.4 | 934 | 173 | 15.6 |
| Dist. 7-C: W. Central | [4] | [4] | .... | [4] | [4] | .... | 1,234 | 356 | 28.8 | 291 | 65 | 18.3 |
| Dist. 8: West | 51,020 | 6,343 | 12.4 | 5,301 | 1,042 | 16.4 | 4,058 | 530 | 13.1 | 443 | 87 | 16.4 |
| Dist. 9: North | 64,723 | 15,951 | 24.6 | 13,487 | 2,464 | 15.4 | 3,688 | 781 | 21.2 | 640 | 141 | 18.1 |
| Dist. 10: Panhandle | 11,306 | 309 | 2.7 | 273 | 36 | 11.7 | 973 | 59 | 6.1 | 47 | 12 | 20.3 |
| Utah | 405 | 269 | 66.4 | 241 | 28 | 10.4 | 101 | 86 | 85.1 | 72 | 14 | 16.3 |
| Virginia | 178 | 36 | 20.2 | 27 | 9 | 25.0 | ..... | ..... | .... | ..... | .... | .... |
| Washington | 41 | 41 | 100.0 | 41 | ..... | .... | ..... | ..... | .... | ..... | ..... | .... |
| West Virginia | 13,332 | 155 | 1.2 | 99 | 56 | 36.1 | 639 | 21 | 3.3 | 13 | 8 | 38.1 |
| Wyoming | 6,759 | 1,349 | 20.0 | 1,112 | 237 | 17.6 | 777 | 226 | 29.1 | 200 | 26 | 11.5 |
| Total U. S. | 600,380 | 99,743 | 16.6 | 87,689 | 12,054 | 12.1 | 55,150 | 11,480 | 20.8 | 10,055 | 1,425 | 12.3 |

* Exclusive of all tests seeking new pay zones or outposts attempting to extend known fields. † Does not include service wells.
[1] Dist. 2 included with Dist. 4. [2] Dist. 5 included with Dist. 6. [3] Dist. 7-B included with Dist. 9. [4] Dist. 7-C included with Dist. 8.

**GSI's** M/V SONIC is now conducting marine seismic surveys in the Eastern Hemisphere. Minimum positioning costs are made possible by its location in this region. **Stretch your exploration budget with this additional benefit.**

## MARINE SEISMIC SURVEYS WITH THE GSI M/V SONIC

★ save you up to 75% of the cost of equivalent land surveys

★ progress 20 to 30 times faster than land work

★ allow full evaluation of structures through offshore extension of land work

★ pinpoint land areas of interest through offshore location of structures extending to land.

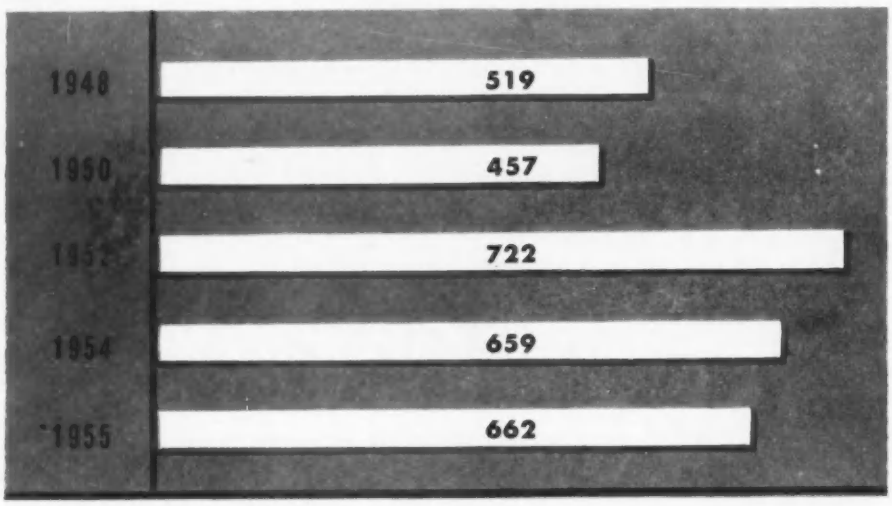
The 405-ton SONIC is an ocean-going vessel equipped for fast single-ship seismic operation. It stays on the job in weather which sends smaller craft hurrying to port. SONIC equipment includes the new 7000-series seismic amplifiers and magneDISC magnetic recording facilities for data storage. A pressure-sensitive seismometer streamer with 40 detectors per trace (other streamer arrays available) gives the advantages of multiple seismometers to marine recording.

*FOR INFORMATION, WRITE, CALL OR CABLE:*

**GEOPHYSICAL SERVICE INC.**
5900 Lemmon Avenue
DALLAS 9, TEXAS

**GEOPHYSICAL SERVICE**
(Nederland) N.V.
Hartogstraat 13
The Hague, Netherlands

*A World of Experience in Finding a World of Oil*




# Geophysical Crews . . . 662 working late in '55 as activity swings up again.

GEOPHYSICAL ACTIVITY leveled off during 1955, stopping the downward trend that started after the 705-crew peak month of November 1953. On November 30 last year, 662 crews were working, three more than the 659 total reported on the same date in 1954.

On the other hand, there were four less core drilling crews (21) in operation at the close of November 1955 than in November 1954.

During 1954 most monthly geophysical and core drilling reports showed a steady decline. Of the six leading exploration states (accounting for 83 percent of U. S. geophysical activity), Texas had the biggest drop, reporting a drop from 245 crews in January to 218 in November. Activity in Montana decreased steadily from 52 crews at the beginning of the year to 37 in November—and New Mexico dropped from 47 to 36 crews.

**Louisiana,** scene of the biggest increase in activity in recent years, showed only a moderate upward trend in 1954, increasing from 103 crews in January to 124 in November. Wyoming increased from 42 to 54 crews and Oklahoma moved upward from 32 to 37 crews.

In contrast, during 1955 Texas reversed its downward trend to show an increase from 218 crews in January to 225 in November. Louisiana showed the biggest increase—51 crews, with 116 working in January and increasing monthly to 167 crews in November. Montana, which showed a decrease in 1954, jumped 10 crews from 30 to 40. New Mexico also reversed its trend to show a slight increase—38 in November compared to 37 in January.

Wyoming, which showed an increase in 1954, dropped from 51 crews to 46, and Oklahoma geophysical activity decreased from 45 crews in January to 33 in November.

**Seismic activity** showed a slight increase during 1955, with 575 crews working in November, compared with 567 on the same date in 1954. Activity in 1954 dropped 5.2 percent from the previous year when 615 crews were working.

Gravity surveys declined from 84 crews in 1954 to 77 in 1955, while magnetometer crews increased from 8 to 10.

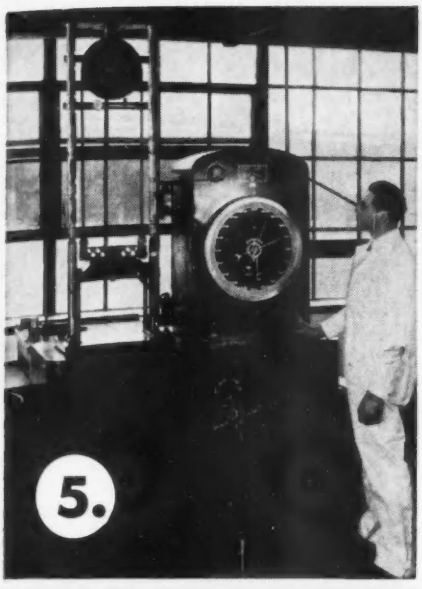
Of the 17 remaining states reporting geophysical and core drilling activity, only two had more crews working in 1955 than the previous year. Colorado reported 23 crews last November, one more than in November 1954.

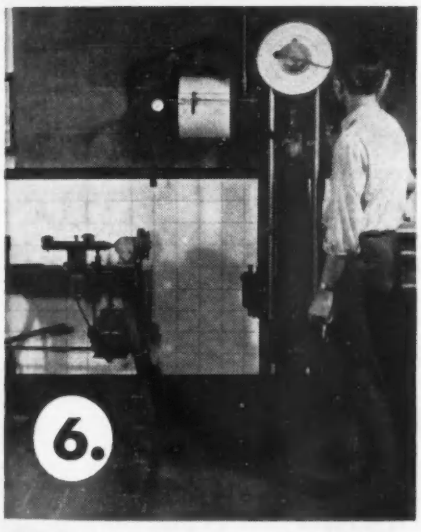
**Geophysical and Core Drilling Crews Operating at End of November, 1954 and 1955**

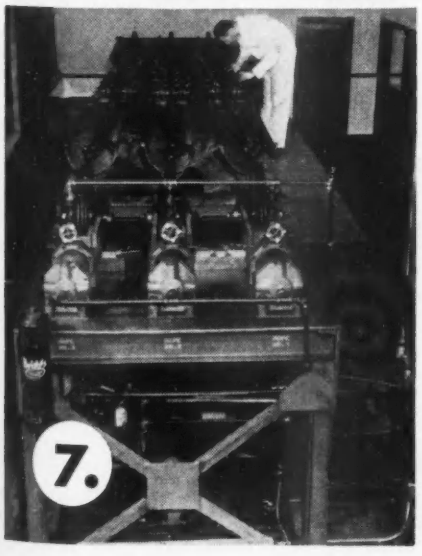
(Source: Interstate Oil Compact Commission)

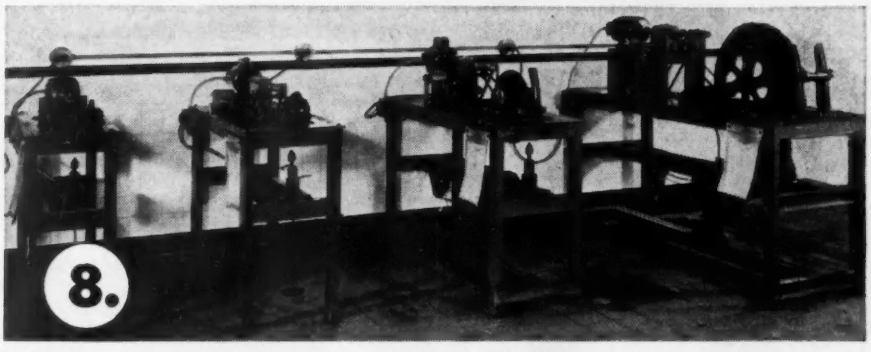
| | GEOPHYSICAL CREWS | | | | | | | | CORE DRILL CREWS | | Total Geophysical and Core Drill | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seismic | | Gravity | | Magnetometer | | Total Geophysical | | | | | |
| STATE | 1954 | 1955 | 1954 | 1955 | 1954 | 1955 | 1954 | 1955 | 1954 | 1955 | 1954 | 1955 |
| Alabama | 2 | 3 | 1 | .... | .... | .... | 3 | 3 | 4 | 1 | 7 | 4 |
| Arkansas | 3 | 4 | 1 | .... | 1 | .... | 5 | 4 | 2 | 1 | 7 | 5 |
| California | 16 | 13 | 3 | 2 | .... | .... | 19 | 15 | .... | .... | 19 | 15 |
| Colorado | 18 | 18 | 3 | 3 | 1 | .... | 22 | 21 | .... | .... | 22 | 23 |
| Florida | 9 | 2 | .... | .... | .... | .... | 9 | 2 | 3 | 1 | 12 | 3 |
| Idaho | 2 | 1 | 1 | 1 | 1 | .... | 4 | 2 | .... | 2 | 4 | 4 |
| Georgia | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 | .... |
| Illinois | 3 | .... | 1 | .... | .... | .... | 4 | .... | 1 | 3 | 5 | 3 |
| Indiana | 1 | .... | .... | .... | .... | .... | 1 | .... | .... | 1 | 1 | 1 |
| Kansas | 11 | 11 | .... | 1 | .... | .... | 11 | 12 | 1 | .... | 12 | 12 |
| Louisiana | 109 | 153 | 15 | 14 | .... | .... | 124 | 167 | .... | .... | 124 | 167 |
| N. Louisiana | 5 | 20 | .... | 1 | .... | .... | 5 | 21 | .... | .... | 5 | 21 |
| S. Louisiana | 104 | 133 | 15 | 13 | .... | .... | 119 | 146 | .... | .... | 119 | 146 |
| Michigan | 1 | .... | 3 | 1 | .... | .... | 4 | 1 | 1 | 1 | 5 | 3 |
| Mississippi | 24 | 29 | 4 | 2 | .... | .... | 28 | 31 | .... | 1 | 28 | 32 |
| Montana | 34 | 32 | 3 | 6 | .... | 1 | 37 | 39 | .... | 1 | 37 | 40 |
| Nebraska | 1 | 1 | .... | .... | .... | .... | 1 | 1 | .... | .... | 1 | 1 |
| Nevada | 5 | 3 | 7 | 3 | 1 | .... | 13 | 6 | 4 | .... | 17 | 6 |
| New Mexico | 31 | 32 | 5 | 5 | .... | 1 | 36 | 38 | .... | .... | 36 | 38 |
| North Dakota | 19 | 7 | .... | 1 | .... | .... | 19 | 8 | .... | 1 | 19 | 9 |
| Oklahoma | 35 | 31 | 1 | 1 | 1 | .... | 37 | 32 | .... | 1 | 37 | 33 |
| South Dakota | 5 | 2 | .... | .... | .... | .... | 5 | 2 | .... | 1 | 5 | 3 |
| Texas | 184 | 183 | 28 | 32 | 2 | 7 | 214 | 222 | 4 | 3 | 218 | 225 |
| Texas (North) | 13 | 13 | .... | .... | 1 | .... | 13 | 13 | .... | 1 | 13 | 14 |
| Texas (East) | 16 | 23 | 3 | 2 | 1 | 1 | 20 | 26 | 2 | 1 | 22 | 27 |
| Texas (S. East) | 41 | 46 | 6 | 10 | .... | 1 | 47 | 57 | .... | .... | 47 | 57 |
| Texas (S. West) | 44 | 36 | 4 | 7 | .... | .... | 48 | 43 | .... | .... | 48 | 43 |
| Texas (W. Cent.) | 8 | 8 | 2 | 2 | .... | .... | 10 | 10 | 1 | 1 | 11 | 11 |
| Texas (West) | 62 | 57 | 13 | 11 | .... | 5 | 76 | 73 | 1 | .... | 77 | 73 |
| Utah | 5 | 7 | 3 | 2 | 1 | 1 | 9 | 10 | 4 | 3 | 13 | 13 |
| Wyoming | 49 | 43 | 5 | 3 | .... | .... | 54 | 46 | .... | .... | 54 | 46 |
| Total | 567 | 575 | 84 | 77 | 8 | 10 | 659 | 662 | 25 | 21 | 684 | 683 |

# How Research Puts Longer Service Life Into WIRE ROPE



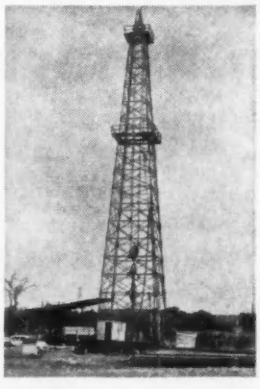




## When you specify one of the Tuffy Wire Ropes, you can say Tuffy and forget complicated specifications

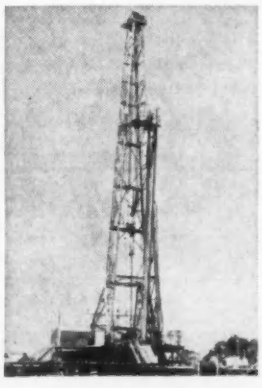
### Standard...

For use with standard rigs drilling in any and all formations. Also for deep drilling beyond 6000 ft. with jackknife rigs. Spools easily, pays off by delivering more ton-miles before cutting is necessary.



### Or Jackknife

An extra-flexible rope, spools smoothly on small sheave and drums of jackknife rigs drilling to 6000 feet. Top flight performer on rigs of all types throughout the oil country.



### Tuffy Rotary Lines

**Ton-Mile Indicator and Log Book.** Provides you with a slide-chart method of figuring ton-miles quickly and easily, and with it you get a log book in which to record your ton-mile record.

**Cut-Off Practice Book.** Outlines the quick easy way to tell when to cut-off and how much. Shows how to obtain maximum service from rotary lines and avoid cutting too much, too soon or too little too late. Carries cut-off tables for derricks of all heights with the various draw works operating in all the major oil territories.

**Handbook of Wire Rope for Well Drilling and Servicing.** More than 40 pages of useful facts on wire rope for rotary, cable tool drilling and well servicing. Includes sizes and constructions of wire rope for all oil field services, its care, lubrication, abuses, correct handling, seizing and socketing.

**Write Today for FREE Copies!**

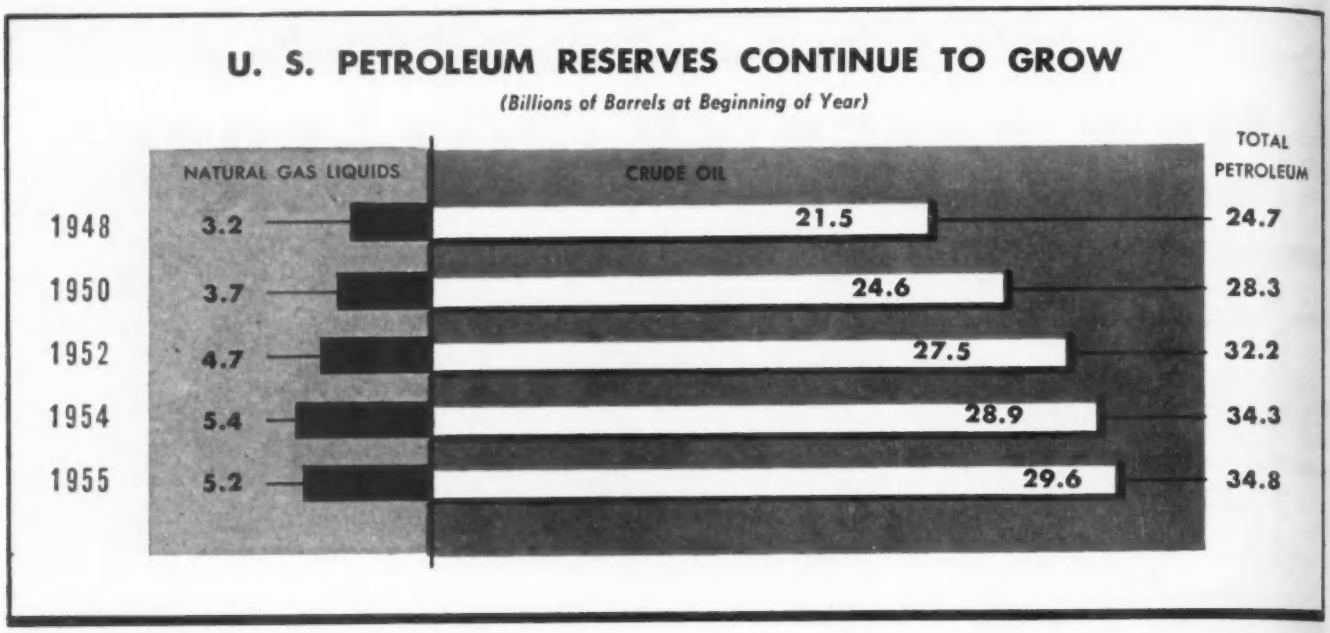
### Your Tuffy Distributor Works For You

He's the man who can help you find a fast answer to all your wire rope problems. He's also the man who often knows as much about some requirements of your equipment as the men who made it. He's the man who's eager to supply the kind of service that will hold your patronage. Feel free to call on him anytime.

**union** Wire Rope **corp.**

1 2104 Manchester Avenue Kansas City 26, Missouri

*Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand*




# U. S. Petroleum Reserves . . .

## Slight increase in '55 indicated.

U. S. RESERVES of crude oil and natural gas liquids probably held steady or increased somewhat in 1955. New reserves proved up during the year very likely equaled or exceeded the year's production of both resources.

This conclusion is indicated by information on drilling and production during the year. The number of oil wells on production at the end of 1955 was at an all time peak of 537,682. That was an increase of 22,874 wells or 4.4 percent over the end of 1954. The number of flowing oil wells increased to 65,364 at the end of 1955 from 62,156 at the end of 1954. The record number of producing oil wells most likely reflects a new record volume of proved crude reserves.

Estimates of reserves at the end of 1955, as made by the American Petroleum Institute and the American Gas Association, will be made available in the near future.

The gain in producing oil wells in 1955 was achieved by drilling 30,432 new oil wells, while 7558 were abandoned. In 1954 only 28,063 oil wells had been completed. Wildcatting was vigorous in 1955, and 1070 new oil fields were discovered, compared with 1056 in 1954.

**Natural Gas Liquids.** Some expansion of reserves of natural gas liquids in 1955 is indicated. Associated with new crude reserves developed were some reserves of natural gas liquids. Also, 706 distillate wells were completed in 1955, compared with 672 in 1954. And 123 new distillate fields were discovered in 1955, against 118 in 1954.

**Estimated Proved Reserves of Liquid Hydrocarbons in U. S., by States, At Beginning of 1955**

Source: American Petroleum Institute

THOUSANDS OF BARRELS

| STATE | Crude Oil | Natural Gas Liquids | Total Liquid Hydrocarbons |
|---|---|---|---|
| Alabama | 15,565 | * | 15,565 |
| Arkansas | 351,420 | 46,919 | 398,339 |
| California | 3,888,588 | 330,249 | 4,218,837 |
| Colorado | 328,651 | 12,747 | 341,398 |
| Illinois | 658,411 | 22,220 | 680,631 |
| Indiana | 67,183 | 151 | 67,334 |
| Kansas | 978,449 | 175,197 | 1,153,646 |
| Kentucky | 85,341 | 10,740 | 96,081 |
| Louisiana | 2,961,651 | 884,046 | 3,845,697 |
| Michigan | 59,620 | 913 | 60,533 |
| Mississippi | 412,276 | 60,420 | 472,696 |
| Montana | 272,394 | 7,179 | 279,573 |
| Nebraska | 38,031 | 2,268 | 40,299 |
| New Mexico | 805,886 | 339,991 | 1,145,877 |
| New York | 45,831 | ..... | 45,831 |
| North Dakota | 134,349 | * | 134,349 |
| Ohio | 36,772 | 1,439 | 38,211 |
| Oklahoma | 1,955,348 | 333,911 | 2,289,259 |
| Pennsylvania | 101,849 | 2,869 | 104,718 |
| Texas | 14,982,003 | 2,928,137 | 17,910,140 |
| Utah | 36,414 | 47 | 36,461 |
| West Virginia | 37,312 | 33,994 | 71,306 |
| Wyoming | 1,303,577 | 50,686 | 1,354,263 |
| *Miscellaneous | 3,825 | 334 | 4,159 |
| Total, United States | 29,560,746 | 5,244,457 | 34,805,203 |

* Miscellaneous includes: Crude in Fla., Mo., Nev., S.D., Tenn., Va.,: Natural Gas Liquids in Ala., Fla., N.D.

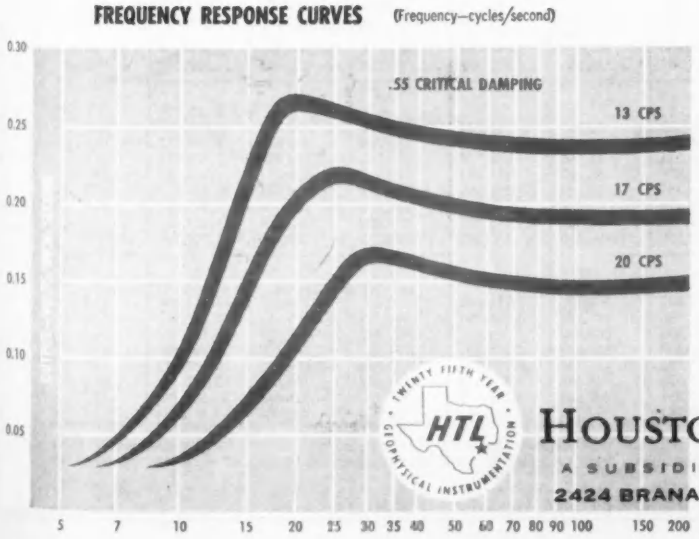
*$10.00 in U.S.A., Canada, and Mexico. Outside these countries, price is $11.00 which includes packing and documentation for export. All prices F.O.B. Houston.

# HTL S-39 dualDAMP seismometer

Houston Technical Laboratories presents a new miniature seismometer that is revolutionary in design—sensationally low in price. The S-39 dualDAMP employs both electromagnetic and fluid damping, giving *undetectable Spurious Response* in an exceptionally rugged land seismometer. Temperature tests have been made from −60° F to +150° F with negligible change in damping.

The $10 price includes the seismometer as shown with stainless steel case, brass cap, (one or two hole), a choice of 2″ brass spike or 3″ diameter flat base, and rubber insulated leader (wire rope lay 400# test). The leader extends from the base rather than top of the S-39 to eliminate wind noise pickup, and has tapered reinforced throat to minimize wear at this point. Optional bases and multiple seis leads are available.

HTL guarantees the S-39 seismometer for six months against parts and workmanship; for six months to one year will replace for $5.00; and after one year, no guarantee.




## Specifications

| | |
|---|---|
| Weight | 11 oz. (With cap and spike) |
| Height | 1⅞ inches |
| Diameter | 1½ inches |
| Natural Frequency | 13, 17, 20 cps optional |
| Coil Resistance | 500 ohms |
| Internal resistor for 0.55 critical damping | 390 ohms (20 cps)<br>470 ohms (17 cps)<br>620 ohms (13 cps) |

Write today for complete information on the S-39 dualDAMP seismometer. Specify Bulletin No. S-310

HOUSTON TECHNICAL LABORATORIES
A SUBSIDIARY OF TEXAS INSTRUMENTS INCORPORATED
2424 BRANARD • HOUSTON 6, TEXAS, U.S.A. • CABLE: HOULAB

## Estimated Proved Reserves of Crude Oil, Natural Gas Liquids, and Total Liquid Hydrocarbons in the United States, by Years

(Sources: Crude oil by American Petroleum Institute; natural gas liquids and total liquid hydrocarbons by API and American Gas Association. Reserves at end of 1936 and for subsequent years estimated by committees on reserves; earlier data estimated by API department of statistics but not based on geological surveys.)

(THOUSANDS OF BARRELS)

| YEAR | Estimated Proved Reserves Beginning of Year | CHANGES IN RESERVES DURING YEAR | | | | | | | Estimated Proved Reserves at End of Year (Col. 1+ Col. 8) | Ratio of Year-End Reserves to Year's Prod. (Year's Supply) (Col. 9÷ Col. 7) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ADDITION) RESERVES PROVED DURING YEAR | | | | | (Deduction) *Production During Year | (Net Change) Increase or Decrease (Col. 6— Col. 7) | | |
| | | Revisions of Previous Estimates | Extensions to Old Pools | Total Revisions and Extensions (Col. 2+3) | New Pools Discovered During Year | Total Reserves Proved During Year (Cols. 4+5) | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| **Crude Oil (Incl. Cycle Plant and Lease Condensate)** | | | | | | | | | | |
| 1857-1899 | 0 | ..... | ..... | ..... | ..... | †3,439,984 | †939,984 | ††2,500,000 | 2,500,000 | ‡43.8 |
| 1900 | 2,500,000 | ..... | ..... | ..... | ..... | 463,621 | 63,621 | + 400,000 | 2,900,000 | 45.6 |
| 1901 | 2,900,000 | ..... | ..... | ..... | ..... | 169,389 | 69,389 | + 100,000 | 3,000,000 | 43.2 |
| 1902 | 3,000,000 | ..... | ..... | ..... | ..... | 288,767 | 88,767 | + 200,000 | 3,200,000 | 36.0 |
| 1903 | 3,200,000 | ..... | ..... | ..... | ..... | 300,461 | 100,461 | + 200,000 | 3,400,000 | 33.8 |
| 1904 | 3,400,000 | ..... | ..... | ..... | ..... | 317,081 | 117,081 | + 200,000 | 3,600,000 | 30.7 |
| 1905 | 3,600,000 | ..... | ..... | ..... | ..... | 334,717 | 134,717 | + 200,000 | 3,800,000 | 28.2 |
| 1906 | 3,800,000 | ..... | ..... | ..... | ..... | 126,494 | 126,494 | ..... | 3,800,000 | 30.0 |
| 1907 | 3,800,000 | ..... | ..... | ..... | ..... | 266,095 | 166,095 | + 100,000 | 3,900,000 | 23.5 |
| 1908 | 3,900,000 | ..... | ..... | ..... | ..... | 278,527 | 178,527 | + 100,000 | 4,000,000 | 22.4 |
| 1909 | 4,000,000 | ..... | ..... | ..... | ..... | 383,171 | 183,171 | + 200,000 | 4,200,000 | 22.9 |
| 1910 | 4,200,000 | ..... | ..... | ..... | ..... | 509,557 | 209,557 | + 300,000 | 4,500,000 | 21.5 |
| 1911 | 4,500,000 | ..... | ..... | ..... | ..... | 720,449 | 220,449 | + 500,000 | 5,000,000 | 22.7 |
| 1912 | 5,000,000 | ..... | ..... | ..... | ..... | 622,935 | 222,935 | + 400,000 | 5,400,000 | 23.8 |
| 1913 | 5,400,000 | ..... | ..... | ..... | ..... | 348,446 | 284,466 | + 100,000 | 5,500,000 | 22.1 |
| 1914 | 5,500,000 | ..... | ..... | ..... | ..... | 165,763 | 265,763 | — 100,000 | 5,400,000 | 19.9 |
| 1915 | 5,400,000 | ..... | ..... | ..... | ..... | 381,104 | 281,104 | + 100,000 | 5,500,000 | 19.6 |
| 1916 | 5,500,000 | ..... | ..... | ..... | ..... | 700,767 | 300,767 | + 400,000 | 5,900,000 | 19.6 |
| 1917 | 5,900,000 | ..... | ..... | ..... | ..... | 335,316 | 335,316 | ..... | 5,900,000 | 17.6 |
| 1918 | 5,900,000 | ..... | ..... | ..... | ..... | 655,928 | 355,928 | + 300,000 | 6,200,000 | 17.4 |
| 1919 | 6,200,000 | ..... | ..... | ..... | ..... | 878,367 | 378,367 | + 500,000 | 6,700,000 | 17.7 |
| 1920 | 6,700,000 | ..... | ..... | ..... | ..... | 942,929 | 442,929 | + 500,000 | 7,200,000 | 16.3 |
| 1921 | 7,200,000 | ..... | ..... | ..... | ..... | 1,072,183 | 472,183 | + 600,000 | 7,800,000 | 16.5 |
| 1922 | 7,800,000 | ..... | ..... | ..... | ..... | 357,531 | 557,531 | — 200,000 | 7,600,000 | 13.6 |
| 1923 | 7,600,000 | ..... | ..... | ..... | ..... | 732,407 | 732,407 | ..... | 7,600,000 | 10.4 |
| 1924 | 7,600,000 | ..... | ..... | ..... | ..... | 613,940 | 713,940 | — 100,000 | 7,500,000 | 10.5 |
| 1925 | 7,500,000 | ..... | ..... | ..... | ..... | 1,763,743 | 763,743 | +1,000,000 | 8,500,000 | 11.1 |
| 1926 | 8,500,000 | ..... | ..... | ..... | ..... | 1,070,874 | 770,874 | + 300,000 | 8,800,000 | 11.4 |
| 1927 | 8,800,000 | ..... | ..... | ..... | ..... | 2,601,129 | 901,129 | +1,700,000 | 10,500,000 | 11.7 |
| 1928 | 10,500,000 | ..... | ..... | ..... | ..... | 1,401,474 | 901,474 | + 500,000 | 11,000,000 | 12.2 |
| 1929 | 11,000,000 | ..... | ..... | ..... | ..... | 3,207,323 | 1,007,323 | +2,200,000 | 13,200,000 | 13.1 |
| 1930 | 13,200,000 | ..... | ..... | ..... | ..... | 1,298,011 | 898,011 | + 400,000 | 13,600,000 | 15.1 |
| 1931 | 13,600,000 | ..... | ..... | ..... | ..... | 251,081 | 851,081 | — 600,000 | 13,000,000 | 15.3 |
| 1932 | 13,000,000 | ..... | ..... | ..... | ..... | 85,159 | 785,159 | — 700,000 | 12,300,000 | 15.7 |
| 1933 | 12,300,000 | ..... | ..... | ..... | ..... | 605,656 | 905,656 | — 300,000 | 12,000,000 | 13.3 |
| 1934 | 12,000,000 | ..... | ..... | ..... | ..... | 1,085,065 | 908,065 | + 177,000 | 12,177,000 | 13.4 |
| 1935 | 12,177,000 | ..... | ..... | ..... | ..... | 1,219,596 | 996,596 | + 233,000 | 12,400,000 | 12.4 |
| 1936 | 12,400,000 | ..... | ..... | ..... | ..... | 1,763,087 | 1,099,687 | + 663,400 | 13,063,400 | 11.9 |
| 1937 | 13,063,400 | ..... | ..... | 2,792,790 | 928,742 | 3,721,532 | 1,277,664 | +2,433,868 | 15,507,268 | 12.1 |
| 1938 | 15,507,268 | ..... | ..... | 2,243,571 | 810,493 | 3,054,064 | 1,213,186 | +1,840,878 | 17,348,146 | 14.3 |
| 1939 | 17,348,146 | ..... | ..... | 2,058,455 | 340,667 | 2,399,122 | 1,264,256 | +1,134,866 | 18,483,012 | 14.6 |
| 1940 | 18,483,012 | ..... | ..... | 1,607,012 | 286,338 | 1,893,350 | 1,351,847 | + 541,503 | 19,024,515 | 14.1 |
| 1941 | 19,024,515 | ..... | ..... | 1,538,989 | 429,974 | 1,968,963 | 1,404,182 | + 564,781 | 19,589,296 | 13.9 |
| 1942 | 19,589,296 | ..... | ..... | 1,618,925 | 260,051 | 1,878,976 | 1,385,479 | + 493,497 | 20,082,793 | 14.5 |
| 1943 | 20,082,793 | ..... | ..... | 1,202,368 | 282,418 | 1,484,786 | 1,503,427 | — 18,641 | 20,064,152 | 13.3 |
| 1944 | 20,064,152 | ..... | ..... | 1,556,192 | 511,308 | 2,067,500 | 1,678,421 | + 389,079 | 20,453,231 | 12.2 |
| 1945 | 20,453,231 | + 248,891 | 1,441,424 | 1,690,315 | 419,984 | 2,110,299 | 1,736,717 | + 373,582 | 20,826,813 | 12.0 |
| **Crude Oil Only:** | | | | | | | | | | |
| 1945 | 19,784,530 | ..... | ..... | ..... | ..... | 1,870,971 | 1,713,655 | + 157,316 | 19,941,846 | 11.6 |
| 1946 | 19,941,846 | +1,254,705 | 1,158,923 | 2,413,628 | 244,434 | 2,658,062 | 1,726,348 | + 931,714 | 20,873,560 | 12.1 |
| 1947 | 20,873,560 | + 749,278 | 1,269,862 | 2,019,140 | 445,430 | 2,464,570 | 1,850,445 | + 614,125 | 21,487,685 | 11.6 |
| 1948 | 21,487,685 | +1,958,853 | 1,439,873 | 3,398,726 | 396,481 | 3,795,207 | 2,002,448 | +1,792,759 | 23,280,444 | 11.6 |
| 1949 | 23,280,444 | + 603,566 | 1,693,862 | 2,297,428 | 890,417 | 3,187,845 | 1,818,800 | +1,369,045 | 24,649,489 | 13.6 |
| 1950 | 24,649,489 | + 663,378 | 1,334,391 | 1,997,769 | 564,916 | 2,562,685 | 1,943,776 | + 618,909 | 25,268,398 | 13.0 |
| 1951 | 25,268,398 | +1,776,110 | 2,248,588 | 4,024,698 | 389,256 | 4,413,954 | 2,214,321 | +2,199,633 | 27,468,031 | 12.4 |
| 1952 | 27,468,031 | + 743,729 | 1,509,131 | 2,252,860 | 496,428 | 2,749,288 | 2,256,765 | + 492,523 | 27,960,554 | 12.4 |
| 1953 | 27,960,554 | +1,264,832 | 1,439,618 | 2,704,450 | 591,680 | 3,296,130 | 2,311,856 | + 984,274 | 28,944,828 | 12.5 |
| 1954 | 28,944,828 | + 537,788 | 1,749,443 | 2,287,231 | 585,806 | 2,873,037 | 2,257,119 | + 615,918 | 29,560,746 | 13.1 |
| **Natural Gas Liquids:** | | | | | | | | | | |
| 1946 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3,163,219 | ..... |
| 1947 | 3,163,219 | ..... | ..... | 192,237 | 59,301 | 251,538 | 160,782 | + 90,756 | 3,253,975 | 20.2 |
| 1948 | 3,253,975 | ..... | ..... | 405,874 | 64,683 | 470,557 | 183,749 | + 286,808 | 3,540,783 | 19.3 |
| 1949 | 3,540,783 | ..... | ..... | 294,211 | 92,565 | 386,776 | 198,547 | + 188,229 | 3,729,012 | 18.8 |
| 1950 | 3,729,012 | ..... | ..... | 707,879 | 58,183 | 766,062 | 227,411 | + 538,651 | 4,267,663 | 18.8 |
| 1951 | 4,267,663 | ..... | ..... | 648,497 | 75,494 | 723,991 | 267,052 | + 456,939 | 4,724,602 | 17.7 |
| 1952 | 4,724,602 | ..... | ..... | 475,170 | 81,668 | 556,838 | 284,789 | + 272,049 | 4,996,651 | 17.5 |
| 1953 | 4,996,651 | ..... | ..... | 648,047 | 95,922 | 743,969 | 302,698 | + 441,271 | 5,437,922 | 18.0 |
| 1954 | 5,437,922 | ..... | ..... | 20,830 | 86,520 | 107,350 | 300,815 | — 193,465 | 5,244,457 | 17.4 |
| **Total Liquid Hydrocarbons:** | | | | | | | | | | |
| 1946 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 24,036,779 | ..... |
| 1947 | 24,036,779 | ..... | ..... | 2,211,377 | 564,731 | 2,716,108 | 2,011,227 | + 704,881 | 24,741,660 | 12.3 |
| 1948 | 24,741,660 | ..... | ..... | 3,804,600 | 461,164 | 4,265,764 | 2,186,197 | +2,079,567 | 26,821,227 | 12.3 |
| 1949 | 26,821,227 | ..... | ..... | 2,591,639 | 982,982 | 3,574,621 | 2,017,347 | +1,557,274 | 28,378,501 | 14.1 |
| 1950 | 28,378,501 | ..... | ..... | 2,705,648 | 623,099 | 3,328,747 | 2,171,187 | +1,157,560 | 29,536,061 | 13.6 |
| 1951 | 29,536,061 | ..... | ..... | 4,673,195 | 464,750 | 5,137,945 | 2,481,373 | +2,656,572 | 32,192,633 | 13.0 |
| 1952 | 32,192,633 | ..... | ..... | 2,728,030 | 578,096 | 3,306,126 | 2,541,554 | + 764,572 | 32,957,205 | 13.0 |
| 1953 | 32,957,205 | ..... | ..... | 3,352,497 | 687,602 | 4,040,099 | 2,614,554 | +1,425,545 | 34,382,750 | 13.2 |
| 1954 | 34,382,750 | ..... | ..... | 2,308,061 | 672,326 | 2,980,387 | 2,557,934 | + 422,453 | 34,805,203 | 13.6 |

* Production for 1936 and previous years from U. S. Bureau of Mines: production for 1937 and each subsequent year compiled by API (and AGA) committees on basis of 11 months actual and December estimated. Small variance of these figures from actual production as later reported is compensated by revision when reserves report for succeeding year is compiled.

† During years 1857-1899. ‡ Based on production of 57,071 thousand barrels in 1899.

# FOR ALL YOUR SHOT HOLE DRILLING... ANYWHERE...

AIR DRILLING PATTERN HOLES WITH

## NEW HAWTHORNE INSERT ROCK BITS

## BE SURE YOUR BUDGET INCLUDES HAWTHORNE BITS

DRILLING COMPARISON TESTS KEEP HAWTHORNE "BLUE DEMON" BITS ON TOP FOR BIT EFFICIENCY AND ECONOMICAL COST

Hawthorne Insert Bits are available in sizes ranging from 1⅞" through 11".

Contact the home office address below for the services of the Hawthorne field service engineer in your area.

1462 B

**HERB J. HAWTHORNE INC.**

P. O. BOX 7366, HOUSTON 8, TEXAS

THE COLORADO FUEL AND IRON CORPORATION

# WICKWIRE ROPE

THE COLORADO FUEL AND IRON CORPORATION — Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
PACIFIC COAST DIVISION — Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane • WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo
Cacttanooga • Chicago • Detroit • Emlenton (Pa.) • New Orleans • New York • Philadelphia

## ROTARY DRILLING LINES

**6 x 19 Seale Construction • "Wisscolay" Preformed**
**6 strands—19 wires to the strand—1 fiber core or 1 Independent Wire Rope Core (IWRC)**

Wickwire's 6 x 19 Seale construction with either fiber or IWRC core has proved its ability to give excellent rotary drilling line service when operating under severe conditions such as low safety factors, fast acceleration and overwinding in multiple layers on the drum.

These ropes are supplied "Wisscolay" Preformed to provide better bending life over multiple reeving through the blocks. Further, the rope's relaxed condition reduces whipping and allows more uniform winding on the drum.

The IWRC construction should be used if the line is subjected to crushing on the drum because of a low safety factor. This construction, as used by Wickwire, gives each strand the best support over the entire life of the rope . . . provides maximum core support with a minimum of strand-to-core nicking. In addition, this Wickwire construction has the proper shape to resist severe crushing and heavy peening because it uniformly transmits the crushing forces to the very center of each strand; this allows the individual wires to resist displacement which occurs in some other constructions.

NOTE: We recommend that rotary lines be purchased in longer lengths than are required to string up the blocks for the maximum number of lines used. This permits the line to be cut off at the drum end and moved forward; as a result, wear and fatigue are more uniformly distributed over the entire line and deterioration of the line due to concentrated wear or fatigue at one point is prevented.

| Diam. in Inches | Approx. Circum. in In. | Approximate Weight Per Ft. in Lbs. | | Breaking Strength in Tons of 2000 Lbs. | |
|---|---|---|---|---|---|
| | | Fiber Core | Independent Wire Rope Core | Fiber Core | Ind. Wire Rope Core |
| **Gray Strand Or Improved Plow Steel** | | | | | |
| 1½ | 4¾ | 3.60 | 3.96 | 92.0 | 98.9 |
| 1⅜ | 4⅜ | 3.03 | 3.33 | 77.7 | 83.5 |
| 1¼ | 3⅞ | 2.50 | 2.75 | 64.6 | 69.4 |
| 1⅛ | 3½ | 2.03 | 2.23 | 52.6 | 56.5 |
| 1 | 3⅛ | 1.60 | 1.76 | 41.8 | 44.9 |
| ⅞ | 2¾ | 1.23 | 1.35 | 32.2 | 34.6 |
| ¾ | 2⅜ | .90 | .99 | 23.8 | 25.6 |
| ⅝ | 2 | .63 | .69 | 16.7 | 17.9 |
| **Plow Steel** | | | | | |
| 1½ | 4¾ | 3.60 | 3.96 | 80.0 | 86.0 |
| 1⅜ | 4⅜ | 3.03 | 3.33 | 67.5 | 72.6 |
| 1¼ | 3⅞ | 2.50 | 2.75 | 56.2 | 60.4 |
| 1⅛ | 3½ | 2.03 | 2.23 | 45.7 | 49.1 |
| 1 | 3⅛ | 1.60 | 1.76 | 36.4 | 39.1 |
| ⅞ | 2¾ | 1.23 | 1.35 | 28.0 | 30.1 |
| ¾ | 2⅜ | .90 | .99 | 20.7 | 22.2 |
| ⅝ | 2 | .63 | .69 | 14.5 | 15.6 |

## CABLE TOOL DRILLING LINES

**6 x 21 Filler Wire Construction**
**6 strands—21 wires to the strand—1 fiber core**

This construction gives superior service over the old 6 x 19 Warrington construction which was formerly used for this type of operation. Its superior service is largely due to the fact that only large wires are used in the outer layer of each strand while the Warrington construction alternated large and small wires in this layer.

Specific advantages gained through the use of the Filler Wire construction include:

1. Increased abrasion resistance with no sacrifice of fatigue resistance.
2. Increased resistance to crushing and flattening on the drum.
3. More uniform distribution of stresses.
4. Same initial cost.

Drilling lines of this construction are usually furnished Right Lay for Midcontinent Fields; Left Lay for Eastern, Rocky Mountain and California Fields. Can be supplied with a "Wisscote" galvanized coating for use in fields where corrosive conditions are present. Available in three grades—Gray Strand Improved Plow Steel, Plow Steel and Mild Plow Steel.

| Diam. in Inches | Approx. Circum. in Inches | Approx. Weight Per Foot in Lbs. | Breaking Strength in Tons of 2000 Pounds | | |
|---|---|---|---|---|---|
| | | | Gray Strand Improved Plow Steel | Plow Steel | Mild Plow Steel |
| 1 | 3⅛ | 1.60 | 41.8 | 36.4 | 31.6 |
| ⅞ | 2¾ | 1.23 | 32.2 | 28.0 | 24.3 |
| ¾ | 2⅜ | .90 | 23.8 | 20.7 | 18.0 |
| ⅝ | 2 | .63 | 16.7 | 14.5 | 12.6 |

## "WISSCOLASTIC" DRILLING LINE

**6 x 16 Filler Wire (6 x 21 Filler Wire) Construction**
**6 strands—21 wires to the strand—1 fiber core**

"Wisscolastic" drilling lines have the extra elasticity that's needed for shallow drilling. This elasticity reduces vibration and whipping and provides better absorption of shock loads. Further, "Wisscolastic" drilling lines are "pre-broken-in" at the factory . . . have good drilling qualities from the moment they are installed. Furnished Left Lay unless otherwise specified. Available in Plow Steel and Mild Plow Steel.

## SAND AND CORING LINES

**6 x 7 Construction**
**"Wisscolay" Preformed**
**6 strands—7 wires to the strand—1 fiber core**

Sand and Coring Lines of the 6 x 7 construction are furnished in three grades—Gray Strand Improved Plow Steel, Plow Steel and Mild Plow Steel. The higher grades are recommended for deep holes. Available with special "Wisscote" galvanized finish to combat the effects of sour oil that is encountered in some fields.

## TUBING, SUCKER ROD OR WINCH LINES

**6 x 31 Seale Construction**
**"Wisscolay" Preformed**
**6 strands—31 wires to the strand—1 fiber core**
**or 1 Independent Wire Rope Core**

For better winding and increased freedom from twisting tendencies, we recommend that the above be specified.

## TORPEDO LINES

**5 x 5 Construction** **5 x 7 Construction**
**"Wisscolay" Preformed**
**5 strands—5 wires to the strand**
**5 strands—7 wires to the strand**

Available in Gray Strand Improved Plow Steel or Plow Steel with either bright or galvanized finish.

## TUBING OR SUCKER ROD LINES

**18 x 7 Non-Spinning or Non-Rotating Construction**
**"Wisscolay" Preformed**
**18 strands—7 wires to the strand—1 fiber core**

This construction is designed so that a single part line can pick up an unguided load without causing the load to spin. In this construction, the 12 strands in the outer layer are twisted in the opposite direction to the 6 inner strands to counteract the rope's tendency to unlay under pressure. Available in Gray Strand Improved Plow Steel or Plow Steel.

## TAPERED DRILLING LINES

In deep drilling operations, one of the biggest weights that the drilling line has to support is itself. This weight can be reduced considerably through the use of Wickwire Tapered Drilling Lines. Near the tool, these lines are large enough to safely support the tool, small enough to eliminate excessive weight; on the drum end, the cable size is increased to safely support the weight of *both* the cable and the tool.

To assure maximum service, every Wickwire Tapered Drilling Line is individually designed and manufactured to specific requirements. Details which should be furnished in requesting information on this item include: projected ultimate depth of the hole, the weight of the tools (including socket, jars, stem and bit), minimum rope diameter desired and the depth at which the line is to be installed.

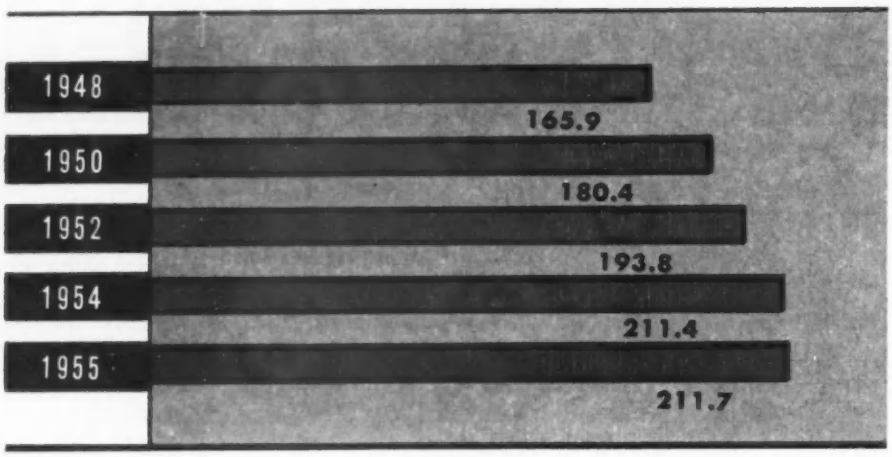
## PLASTIC COATED FIBER CORES

Sand and Drilling lines containing plastic-coated fiber cores give superior service in fields where heavy loads and fluids are commonly encountered. These specially-developed cores combine all the advantages of both plastic and fiber cores. The fiber center gives the core the advantages found in fiber cores including resiliency, compressibility and excellent strand support. The plastic jacket greatly improves the core's resistance to the damaging effects of water and/or corrosive fluids. Plastic coated fiber cores are commonly supplied in diameters ranging from ½" through 1"; other sizes can be supplied upon request.

**NOTE: Wickwire Preformed Wire Ropes can be supplied non-preformed upon request.**

## U. S. HAS LARGE RESERVES OF NATURAL GAS

*(Trillions of Cubic Feet Beginning of Year)*




# Natural Gas Reserves . . . 1955

### gain moderate; old reserves decline.

U. S. RESERVES of natural gas probably showed only moderate, if any, increase during 1955. Substantial new reserves were proved up through wildcat and development drilling. But old and new reserves were drawn down materially in supplying the volumes used during the year. Marketing of natural gas increased 7.2 percent and reached 9.4 trillion cubic feet.

Estimates of natural gas reserves at the end of 1955 are being prepared by the American Gas Association and will become available soon.

The possibility that natural gas reserves may be somewhat higher now than a year ago is indicated by figures on producing gas wells. There were 73,802 wells producing gas and condensate at the end of 1955, compared with 72,195 at end of 1954, an increase of 1607 wells or 2.2 percent.

New gas and distillate wells completed in 1955 totaled 4266 (47 more than in 1954), while 2659 wells were abandoned. Only 355 new gas and condensate fields were discovered in 1955, compared with 378 in 1954.

### Changes in U. S. Reserves of Natural Gas, by Years, Since 1945

Source: AGA . . . Data in millions of cubic feet, 14.65 psi at 60° F.

| YEAR | Estimated Proved Reserves Beginning of Year | CHANGES IN RESERVES DURING YEAR (Add.) Reserves Proved: Extensions and Revisions | Discoveries of New Fields and New Pools in Old Fields | Total Reserves Proved During Year (Cols. 2+3) | (Add or Deduct) Net Change in Storage | (Deduct) Net Production During Year | (Net Change) Increase or Decrease (Cols. 4+ 5—6) | Estimated Proved Reserves End of Year (Cols. 1+7) | Ratio of Year-End Reserves to Year's Prod. (Year's Supply) Col. 8÷ Col. 6 |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 1945 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 147,789,367 | .... |
| 1946 | 147,789,367 | ..... | ..... | 17,729,152 | * | 4,942,617 | +12,786,535 | 160,575,901 | 32.5 |
| 1947 | 160,575,901 | 7,570,654 | 3,410,170 | 10,980,824 | * | 5,629,811 | + 5,351,013 | 165,926,914 | 29.5 |
| 1948 | 165,926,914 | 9,769,483 | 4,129,089 | 13,898,572 | + 51,482 | 6,007,628 | + 7,942,426 | 173,869,340 | 28.9 |
| 1949 | 173,869,340 | 8,061,429 | 4,612,870 | 12,674,299 | + 82,746 | 6,245,041 | + 6,512,004 | 180,381,344 | 28.9 |
| 1950 | 180,381,344 | 9,172,381 | 2,877,351 | 12,049,732 | + 54,301 | 6,892,678 | + 5,211,355 | 185,592,699 | 26.9 |
| 1951 | 185,592,699 | 13,013,606 | 3,039,385 | 16,052,991 | +132,751 | 7,966,941 | + 8,218,801 | 193,811,500 | 24.3 |
| 1952 | 193,811,500 | 8,934,470 | 5,411,043 | 14,345,513 | +198,850 | 8,639,638 | + 5,904,725 | 199,716,225 | 23.1 |
| 1953 | 199,716,225 | 13,371,355 | 7,081,661 | 20,453,016 | +516,431 | 9,238,540 | +11,730,907 | 211,447,132 | 22.9 |
| 1954 | 211,447,132 | 4,632,309 | 4,966,894 | 9,599,203 | + 90,906 | 9,426,509 | + 263,600 | 211,710,732 | 22.5 |

* Not estimated.

### Estimated Proved Reserves of Natural Gas in U. S., by States, at Beginning of 1955

(Source: AGA . . . Millions of Cubic Feet—14.65 psia, at 60 deg. F.)

| | |
|---|---|
| Arkansas | 1,165,379 |
| *California | 9,026,603 |
| Colorado | 1,932,913 |
| Illinois | 253,756 |
| Indiana | 36,049 |
| Kansas | 15,758,332 |
| Kentucky | 1,286,607 |
| *Louisiana | 36,799,986 |
| Michigan | 330,100 |
| Mississippi | 2,772,683 |
| Montana | 723,731 |
| Nebraska | 192,946 |
| New Mexico | 17,240,669 |
| New York | 69,362 |
| Ohio | 774,741 |
| Oklahoma | 12,396,148 |
| Pennsylvania | 732,163 |
| *Texas | 105,129,062 |
| Utah | 387,375 |
| West Virginia | 1,607,290 |
| Wyoming | 2,855,071 |
| †Miscellaneous | 239,766 |
| **Total, United States** | **211,710,732** |

* Includes off-shore reserves.

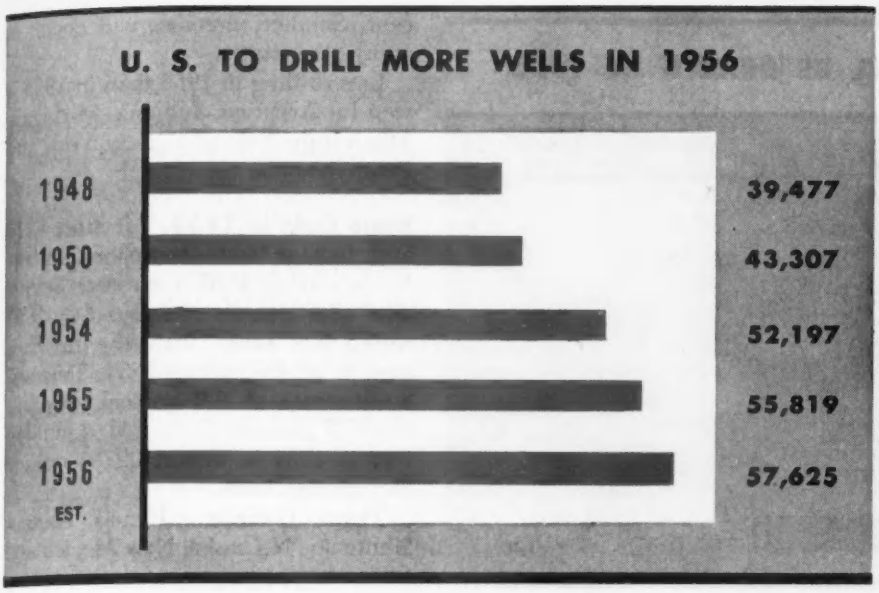
† Includes Ala., Ariz., Fla., Md., Mo., N.D., Va.

### Estimates of Proved Reserves of Natural Gas in U. S., by Years, Since 1918

(Production from Bureau of Mines)

| YEAR | Reserves End of Year (Billion Cubic Feet) | Authority for Estimate of Reserves | Net Production (Billion Cubic Feet) | Ratio Reserve to Annual Prod. |
|---|---|---|---|---|
| 1918 | 15,000 | E. Holley Poe[1] | 721 | 20.8 |
| 1919 | 15,000 | " " | 746 | 20.1 |
| 1920 | 15,000 | " " | 798 | 18.8 |
| 1921 | 15,000 | " " | 662 | 22.7 |
| 1922 | 15,000 | " " | 763 | 19.7 |
| 1923 | 15,000 | " " | 1,007 | 14.9 |
| 1924 | 15,000 | " " | 1,142 | 13.1 |
| 1925 | 23,000 | *Gas Facts*[2] | 1,189 | 19.3 |
| 1926 | 23,000 | " " | 1,313 | 17.5 |
| 1927 | 23,000 | " " | 1,445 | 15.9 |
| 1928 | 23,000 | " " | 1,568 | 14.7 |
| 1929 | 23,000 | " " | 1,918 | 12.0 |
| 1930 | 46,000 | Earl P. Hines[3] | 1,943 | 23.7 |
| 1931 | 46,000 | " " | 1,686 | 27.3 |
| 1932 | 46,000 | " " | 1,556 | 29.6 |
| 1933 | 46,000 | " " | 1,555 | 29.6 |
| 1934 | 62,000 | Ralph E. Davis[4] | 1,771 | 35.0 |
| 1935 | 62,000 | " " | 2,408 | 25.7 |
| 1936 | 62,000 | " " | 2,571 | 24.1 |
| 1937 | 66,000 | " " | 2,854 | 23.1 |
| 1938 | 70,000 | Lyon F. Terry[5] | 2,960 | 23.6 |
| 1939 | 70,000 | " " | 3,162 | 22.1 |
| 1940 | 85,000 | Ralph E. Davis[4] | 3,331 | 25.5 |
| 1941 | 113,800 | P.A.W.[6] | 3,459 | 32.9 |
| 1942 | 110,000 | " | 3,701 | 29.7 |
| 1943 | 110,000 | " | 4,336 | 25.4 |
| 1944 | 133,500 | " | 4,731 | 28.2 |
| 1945 | 147,789 | A.G.A.[7] | 4,840 | 30.5 |
| 1946 | 160,576 | " | 4,943 | 32.5 |
| 1947 | 165,927 | " | 5,630 | 29.5 |
| 1948 | 173,869 | " | 6,008 | 28.9 |
| 1949 | 180,381 | " | 6,245 | 28.9 |
| 1950 | 185,593 | " | 6,893 | 26.9 |
| 1951 | 193,811 | A.G.A.[7] | 7,967 | 24.3 |
| 1952 | 199,716 | " | 8,640 | 23.1 |
| 1953 | 211,447 | A.G.A.[7] | 9,239 | 22.9 |
| 1954 | 211,711 | A.G.A.[7] | 9,427 | 22.5 |

[1] And Associates, New York, in report September 23, 1947. [2] American Gas Association yearbook, 1945 and 1946 [3] Then with Cities Service Co., New York. [4] Consulting Engineer, Houston. [5] Of Chase National Bank, New York [6] Petroleum Administration for War. [7] American Gas Association.




# U.S. Drilling Forecast . . . New peak is expected in wells and footage.

By **WARREN L. BAKER,** Editorial Director, and **CECIL W. SMITH,** Statistical Editor

RECORD DRILLING activity is foreseen for the U. S. during 1956. Drilling of an all-time high of 57,625 wells is forecast by WORLD OIL in its annual survey. This is 3.2 percent, or 1800 more wells, than the record number drilled during 1955. WORLD OIL also forecasts drilling of 238,049,000 feet of hole in 1956. This is 7.4 percent, or 10½ million more feet than last year's peak volumes.

Peak crude oil and natural gas production, plus stable prices, are conditions seen as encouraging producers to expand drilling operations.

**Big Growth in Recent Years.** U. S. drilling operations have experienced remarkable expansion in recent years. The volume forecast for 1956 is 8145 more wells than in 1953, and 14,318 or one-third greater than the number drilled in 1950.

Footage has grown even more rapidly. The 1956 anticipated level is 78,288,000 feet or 50 percent greater than the 1950 volume.

**Biggest Gain in Texas.** Increased Texas activity will account for much of the gain in U. S. drilling. WORLD OIL forecasts 20,765 wells will be drilled in Texas during 1956, an increase of 4.1 percent, or 812 wells, over the 19,953 wells completed during 1955. This will constitute 36 percent of all U. S. wells.

Texas footage is expected to rise from 87½ million feet in 1955 to 91⅓ million feet during 1956, up 4.3 percent.

The West Texas district, composed of Railroad Commission Districts 7-C and 8, is expected to have the largest gain. Wells in this region are seen as rising from 5340 last year to 5880 this year. Footage is likely to reach 30¾ million feet, an advance of nearly 2½ million feet.

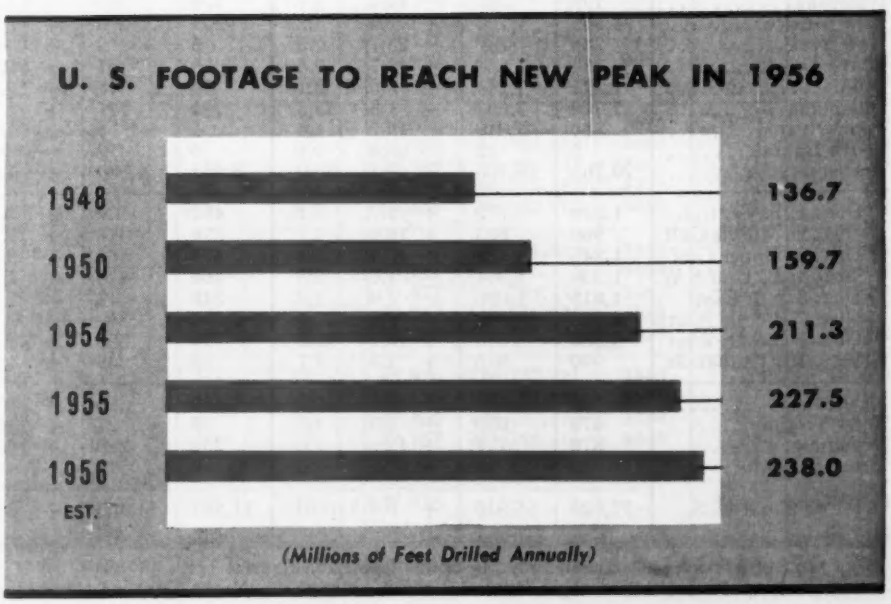
Smaller increases are anticipated in all other Texas districts, except East Texas. The latter may register a slight loss.

**Large Louisiana Increase.** Considerable more drilling is anticipated for Louisiana. Completions in 1956 are estimated at 4625 wells, up 12.9 percent or 534 wells. Deeper drilling will push the state's footage to more than 31¾ million feet, a gain of 5 million feet or 18.4 percent.

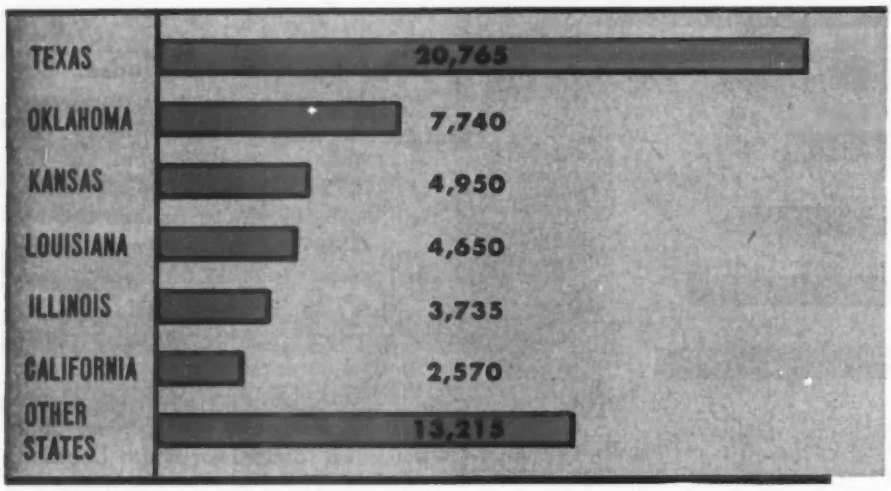
Most of the Louisiana gain will take place in the southern region. South Louisiana is expected to complete 2460 wells in 1956, up 23 percent or 460 wells. An increase of 23 percent is forecast for South Louisiana footage. This calls for the drilling of 24¾ million feet, an average of slightly over 10,000 feet per well. No other area can come close to matching this average depth per well.

Offshore wells in the Gulf of Mexico are included in South Louisiana figures. Prospects are that 630 wells will be completed offshore, in contrast with 360 during 1955.

**Other Leading States.** Kansas is expected to be the site of 4950 completions in 1956, an advance of 6 percent or 281 wells. Oklahoma may see the completion of 7740 wells this year, an increase of 1.8 percent or 137 wells. New Mexico's forecast is for 1855 wells, a gain of 139 wells or 7.5 percent. California drilling may result in 2570 wells, 101 wells or 4.1 percent larger than during 1955. Completion of 870 wells is predicted for Wyoming, an advance of 93 wells or 12 per-



## WHERE U. S. WELLS WILL BE DRILLED IN 1956




cent. Smaller increases will occur in many other states.

Less drilling in 1956 than in 1955 is seen for Arkansas, Indiana, Michigan, Mississippi, Nebraska, New York and Pennsylvania.

**Huge Gain in 1955.** Far more wells and footage were completed in the U. S. during 1955 than ever before. The 55,819 wells completed in 1955 were 3622 more than the previous high of 52,197 during 1954. This was an increase of 6.9 percent. Footage rose 7.7 percent from 211¼ million feet in 1954 to almost 227½ million feet during 1955.

Texas, Louisiana, Illinois, Kansas, Kentucky, Nebraska, New Mexico and Ohio showed large gains.

### Forecast of Wells and Footage to Be Drilled in 1956

Forecast covers all new wells to be drilled for oil or gas in 1956, salt-water disposal wells, and water or gas-input wells for repressuring and secondary recovery, but does not estimate old wells drilled deeper.

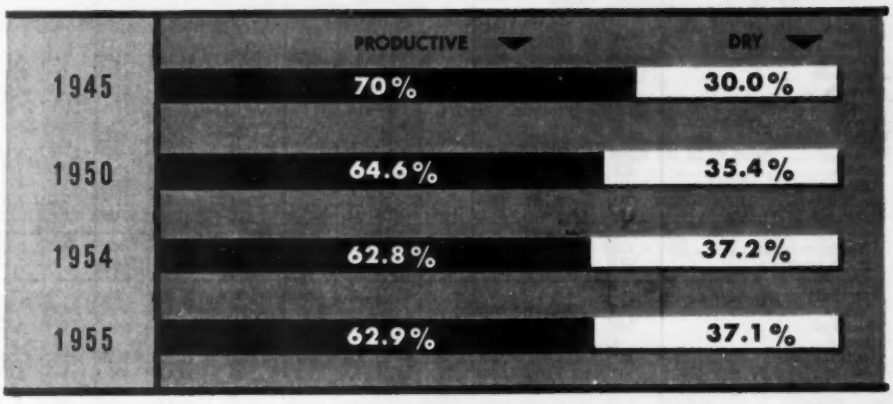
| State or District | TOTAL NEW WELLS | | | | WILDCAT TESTS | | | FOOTAGE (New Wells) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Forecast For 1956 | Drilled In 1955 | % Diff. '55-'56 | % of U.S. 1956 | Forecast For 1956 | Drilled In 1955 | % Diff. '55-'56 | Forecast For 1956 | Drilled In 1955 | % Diff. '55-'56 | % of U.S. 1956 |
| Alabama | 105 | 43 | +144.2 | 0.1 | 80 | 41 | + 95.1 | 595,000 | 204,191 | +191.4 | 0.2 |
| Arizona | 10 | 5 | +100.0 | 0.0 | 8 | 5 | + 60.0 | 45,000 | 22,518 | + 99.8 | 0.0 |
| Arkansas | 750 | 784 | — 4.3 | 1.4 | 140 | 151 | — 7.3 | 2,390,000 | 2,530,207 | — 5.6 | 1.0 |
| California | 2,570 | 2,469 | + 4.1 | 4.4 | 385 | 388 | — 0.8 | 12,615,000 | 12,141,529 | + 3.9 | 5.3 |
| Colorado | 1,585 | 1,520 | + 4.3 | 2.8 | 810 | 801 | + 1.1 | 8,575,000 | 8,208,324 | + 4.5 | 3.6 |
| Florida | 15 | 26 | — 42.3 | 0.0 | 15 | 25 | — 40.0 | 102,000 | 179,185 | — 43.1 | 0.1 |
| Illinois | 3,735 | 3,908 | — 4.4 | 6.5 | 710 | 771 | — 7.9 | 9,030,000 | 9,449,165 | — 4.5 | 3.8 |
| Indiana | 585 | 634 | — 7.7 | 1.0 | 165 | 185 | — 10.8 | 930,000 | 1,006,909 | — 7.6 | 0.4 |
| Kansas | 4,950 | 4,669 | + 6.0 | 8.6 | 1,240 | 1,193 | + 3.9 | 18,770,000 | 17,605,365 | + 6.6 | 7.9 |
| Kentucky | 1,840 | 1,719 | + 7.0 | 3.2 | 130 | 115 | + 13 0 | 2,505,000 | 2,534,276 | — 1.2 | 1.0 |
| Louisiana | 4,685 | 4,151 | + 12.9 | 8.1 | 655 | 570 | + 14.9 | 31,840,000 | 26,890,271 | + 18.4 | 13.4 |
| North Louisiana | 2,225 | 2,151 | + 3.4 | 3.8 | 235 | 221 | + 6.3 | 7,120,000 | 6,829,597 | + 4.3 | 3.0 |
| South Louisiana | 2,460 | 2,000 | + 23.0 | 4.3 | 420 | 349 | + 20.3 | 24,720,000 | 20,060,674 | + 23.2 | 10.4 |
| * Gulf of Mexico | 630 | 360 | + 75.0 | 1.1 | 75 | 53 | + 41.5 | 6,243,000 | 3,559,274 | + 75.4 | 2.6 |
| Michigan | 480 | 512 | — 6.3 | 0.9 | 180 | 197 | — 8.6 | 1,425,000 | 1,524,610 | — 6.5 | 0.6 |
| Mississippi | 440 | 462 | — 4.8 | 0.7 | 185 | 192 | — 3.7 | 3,125,000 | 3,370,283 | — 7.3 | 1.3 |
| Missouri | 30 | 25 | + 20.0 | 0.1 | 10 | 18 | — 44.5 | 17,000 | 13,696 | + 24.1 | 0.0 |
| Montana | 385 | 363 | + 6.1 | 0.6 | 160 | 153 | + 4.6 | 1,740,000 | 1,746,638 | — 0.4 | 0.7 |
| Nebraska | 725 | 847 | — 14.4 | 1.3 | 330 | 386 | — 14.5 | 4,125,000 | 4,844,139 | — 14.9 | 1.8 |
| New Mexico | 1,855 | 1,726 | + 7.5 | 3.2 | 225 | 209 | + 7.7 | 7,910,000 | 7,354,782 | + 7.5 | 3.3 |
| New York | 280 | 367 | — 23.7 | 0.5 | 5 | 2 | +150.0 | 390,000 | 510,439 | — 23.6 | 0.1 |
| North Dakota | 280 | 253 | + 10.7 | 0.5 | 75 | 67 | + 11.9 | 1,970,000 | 1,794,669 | + 9.8 | 0.9 |
| Ohio | 1,225 | 1,214 | + 0.9 | 2.1 | 20 | 16 | + 25.0 | 2,565,000 | 2,547,752 | + 0.7 | 1.0 |
| Oklahoma | 7,740 | 7,603 | + 1.8 | 13.5 | 790 | 777 | + 1.7 | 27,040,000 | 26,464,766 | + 2.2 | 11.4 |
| Pennsylvania | 860 | 1,018 | — 15.5 | 1.4 | 5 | 3 | + 66.7 | 2,400,000 | 2,831,707 | — 15.3 | 1.0 |
| South Dakota | 5 | 12 | — 58.3 | 0.1 | 5 | 12 | — 58.3 | 15,000 | 52,476 | — 71.4 | 0.0 |
| Texas | 20,765 | 19,953 | + 4.1 | 36.0 | 5,035 | 4,860 | + 3.6 | 91,335,000 | 87,565,959 | + 4.3 | 38.4 |
| Dist. 1: S. Central | 1,820 | 1,772 | + 2.7 | 3.1 | 450 | 435 | + 3.4 | 4,830,000 | 4,708,002 | + 2.6 | 2.0 |
| Dist. 2: Middle Gulf | 960 | 823 | + 16.6 | 1.7 | 370 | 313 | + 18.2 | 5,900,000 | 5,022,214 | + 17.5 | 2.5 |
| Dist. 3: Upper Gulf | 1,845 | 1,789 | + 3.1 | 3.2 | 475 | 463 | + 2.6 | 11,950,000 | 11,552,991 | + 3.4 | 5.0 |
| Dist. 4: L. Gulf-S.W. | 1,330 | 1,351 | — 1.6 | 2.3 | 460 | 470 | — 2.1 | 7,090,000 | 7,192,881 | — 1.4 | 3.0 |
| Dist. 5 & 6: East | 1,015 | 1,035 | — 1.9 | 1.8 | 340 | 346 | — 1.7 | 4,955,000 | 5,099,945 | — 2.9 | 2.1 |
| Dist. 7-B & 9: North | 6,925 | 6,868 | + 0.8 | 12.0 | 1,890 | 1,888 | + 0.1 | 22,330,000 | 22,138,312 | + 0.9 | 9.4 |
| Dist. 7-C & 8: West | 5,880 | 5,340 | + 10.1 | 10.2 | 990 | 886 | + 11.7 | 30,760,000 | 28,388,967 | + 8.4 | 12.9 |
| Dist. 10: Panhandle | 990 | 975 | + 1.5 | 1.7 | 60 | 59 | + 1.7 | 3,520,000 | 3,462,647 | + 1.7 | 1.5 |
| Utah | 155 | 101 | + 53.5 | 0.3 | 110 | 86 | + 27.9 | 610,000 | 445,055 | + 37.1 | 0.2 |
| West Virginia | 670 | 639 | + 4.9 | 1.1 | 25 | 21 | + 19.0 | 1,635,000 | 1,683,815 | — 2.9 | 0.7 |
| Wyoming | 870 | 777 | + 12.0 | 1.6 | 250 | 226 | + 10.6 | 4,200,000 | 3,852,121 | + 9.0 | 1.8 |
| Other States† | 30 | 19 | + 57.9 | 0.0 | 20 | 10 | +100.0 | 150,000 | 104,698 | + 43.3 | 0.1 |
| Total U. S. | 57,625 | 55,819 | + 3.2 | 100.0 | 11,767 | 11,480 | + 2.5 | 238,049,000 | 227,479,545 | + 4.6 | 100.0 |

* Gulf of Mexico wells are included in South Louisiana figures.
† Other states include Georgia, Idaho, Nevada, Maryland, North Carolina, Oregon, Tennessee and Washington.

Texas' completions rose from 18,539 in 1954 to 19,953 for 1955.

**Based on Company Survey.** This forecast, like all preceding WORLD OIL forecasts for the past 23 years, is based on a survey of oil company drilling plans. Numerous companies that drill a substantial portion of U. S. wells supplied data on the number of wells they expect to drill during the year. In addition, oil and gas conservation officials in some areas provided valuable information.

## HIGH PORTION OF U. S. WELLS ARE DRY HOLES




### Wells Completed Annually in United States

Source: WORLD OIL and predecessor, The Oil Weekly, with aid of other authoritative sources, 1921 to now; 1920 and earlier years from U. S. Bureau of Mines and "Petroleum in the United States and Possessions," by Arnold and Kemnitzer.

| YEAR | NEW WELLS, BY CLASSES | | | | | | | TOTAL NEW WELLS | | | Old Wells Drilled Deeper | Total Completions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oil | Distillate | Gas | Dry | Water Input | Gas Injection | Salt Water Disposal | New Wells Drilled | *Footage Drilled | *Avge. Well Depth | | |
| 1859-1917 | 380,502 | .... | 20,183 | 91,821 | ..... | .... | .... | 492,506 | ..... | .... | .... | 492,506 |
| 1918 | 17,860 | .... | 2,324 | 5,629 | ..... | .... | .... | 25,813 | ..... | .... | .... | 25,813 |
| 1919 | 21,041 | .... | 2,153 | 6,075 | ..... | .... | .... | 29,269 | ..... | .... | .... | 29,269 |
| 1920 | 24,278 | .... | 2,275 | 7,476 | ..... | .... | .... | 34,029 | ..... | .... | .... | 34,029 |
| 1921 | 14,715 | .... | 2,081 | 5,193 | ..... | .... | .... | 21,989 | ..... | .... | .... | 21,989 |
| 1922 | 17,790 | .... | 1,926 | 5,191 | ..... | .... | .... | 24,907 | ..... | .... | .... | 24,907 |
| 1923 | 16,182 | .... | 2,140 | 6,043 | ..... | .... | .... | 24,365 | ..... | .... | .... | 24,365 |
| 1924 | 14,707 | .... | 2,172 | 5,591 | ..... | .... | .... | 22,470 | ..... | .... | .... | 22,470 |
| 1925 | 17,029 | .... | 2,536 | 6,847 | ..... | .... | .... | 26,412 | 76,594,800 | 2900 | .... | 26,412 |
| 1926 | 18,626 | .... | 2,502 | 8,328 | ..... | .... | .... | 29,456 | 82,476,800 | 2800 | .... | 29,456 |
| 1927 | 14,382 | .... | 2,494 | 7,213 | ..... | .... | .... | 24,089 | 72,267,000 | 3000 | .... | 24,089 |
| 1928 | 12,505 | .... | 2,754 | 7,154 | 2,342 | .... | .... | 24,765 | 74,295,000 | 3000 | .... | 24,765 |
| 1929 | 15,758 | .... | 3,107 | 7,600 | 3,898 | .... | .... | 30,363 | 88,052,700 | 2900 | .... | 30,363 |
| 1930 | 12,133 | .... | 2,971 | 6,163 | 2,444 | .... | .... | 23,711 | 68,761,900 | 2900 | .... | 23,711 |
| 1931 | 7,061 | .... | 2,067 | 3,264 | 567 | .... | .... | 12,959 | 37,892,116 | 2924 | .... | 12,959 |
| 1932 | 10,569 | .... | 1,079 | 3,389 | 799 | .... | .... | 15,836 | 47,682,196 | 3011 | .... | 15,836 |
| 1933 | 7,887 | .... | 1,190 | 3,492 | 954 | .... | .... | 13,523 | 39,568,298 | 2926 | .... | 13,523 |
| 1934 | 13,119 | .... | 1,496 | 4,811 | 1,696 | .... | .... | 21,122 | 56,141,433 | 2658 | .... | 21,122 |
| 1935 | 15,418 | .... | 1,802 | 5,696 | 1,665 | .... | .... | 24,581 | 67,844,939 | 2760 | .... | 24,581 |
| 1936 | 18,704 | .... | 2,375 | 5,787 | 2,096 | .... | .... | 28,962 | 80,996 816 | 2797 | .... | 28,962 |
| 1937 | 23,115 | .... | 2,732 | 6,627 | 2,739 | .... | .... | 35,213 | 105,099,189 | 2985 | .... | 35,213 |
| 1938 | 19,106 | .... | 2,143 | 6,515 | 1,363 | .... | .... | 29,127 | 90,585,158 | 3110 | .... | 29,127 |
| 1939 | 17,734 | .... | 2,030 | 6,890 | 1,358 | .... | .... | 28,012 | 85,523,094 | 3053 | .... | 28,012 |
| 1940 | 19,843 | .... | 2,265 | 7,053 | 1,988 | .... | .... | 31,149 | 96,182,605 | 3088 | .... | 31,499 |
| 1941 | 19,590 | .... | 3,279 | 7,280 | 2,197 | 117 | 47 | 32,510 | 99,347,714 | 3056 | 822 | 33,332 |
| 1942 | 10,977 | 105 | 2,685 | 5,962 | 2,141 | 73 | 47 | 21,990 | 67,903,053 | 3088 | 588 | 22,578 |
| 1943 | 9,887 | 76 | 2,314 | 6,364 | 1,576 | 90 | 42 | 20,349 | 61,991,857 | 3046 | 471 | 20,820 |
| 1944 | 13,502 | 54 | 3,024 | 7,153 | 1,784 | 218 | 51 | 25,786 | 84,378,457 | 3272 | 377 | 26,163 |
| 1945 | 13,944 | 153 | 3,039 | 7,346 | 1,796 | 329 | 42 | 26,649 | 92,982,113 | 3489 | 491 | 27,140 |
| 1946 | 16,087 | 207 | 3,355 | 8,496 | 1,816 | 219 | 50 | 30,230 | 101,124,813 | 3345 | 615 | 30,845 |
| 1947 | 17,613 | 283 | 3,437 | 9,751 | 1,861 | 156 | 46 | 33,147 | 112,816,124 | 3404 | 651 | 33,798 |
| 1948 | 22,197 | 346 | 2,966 | 11,939 | 1,885 | 84 | 60 | 39,477 | 136,709,153 | 3463 | 533 | 40,010 |
| 1949 | 21,415 | 378 | 3,121 | 12,898 | 1,036 | 56 | 58 | 38,962 | 138,616,941 | 3558 | 535 | 39,497 |
| 1950 | 23,775 | 465 | 3,015 | 14,918 | 993 | 38 | 103 | 43,307 | 159,761,732 | 3689 | 751 | 44,058 |
| 1951 | 23,532 | 344 | 3,198 | 17,497 | 1,323 | 35 | 67 | 45,996 | 176,757,221 | 3843 | 770 | 46,766 |
| 1952 | 23,371 | 348 | 3,345 | 18,211 | 1,147 | 25 | 62 | 46,509 | 188,392,695 | 4051 | 537 | 47,046 |
| 1953 | 25,251 | 374 | 3,858 | 18,759 | 1,123 | 25 | 90 | 49,480 | 198,431,603 | 4010 | 486 | 49,966 |
| 1954 | 28,063 | 672 | 3,547 | 19,137 | 682 | 21 | 75 | 52,197 | 211,296,158 | 4048 | 498 | 52,695 |
| 1955† | 30,432 | 706 | 3,560 | 20,452 | 499 | 62 | 108 | 55,819 | 227,479,545 | 4075 | 524 | 56,343 |
| Total | 1,049,700 | 4,511 | 118,540 | 416,021 | 45,768 | 1,548 | 948 | 1,637,036 | ..... | .... | 8,649 | 1,645,685 |

*Footage data not available prior to 1925 and estimated 1925 1930; actual statistics after 1930.
†Data for 1955 subject to slight revision.

## Footage and Average Depths Drilled in All Wells in the United States in 1955

| STATE OR DISTRICT | OIL | | | DISTILLATE | | | GAS | | | DRY | | | WATER INPUT | | | GAS INPUT | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth |
| Alabama | 1 | 11,517 | 11517 | | | | | | | 42 | 192,674 | 4587 | | | | | | |
| Arizona | 1 | 6,382 | 6382 | | | | | | | 4 | 16,136 | 4034 | | | | | | |
| Arkansas | 440 | 1,308,097 | 2973 | 2 | 17,595 | 8798 | 7 | 24,120 | 3446 | 344 | 1,178,765 | 3529 | | | | | | |
| California | 1,710 | 8,335,135 | 4874 | | | | 63 | 300,962 | 4777 | 694 | 3,497,924 | 5040 | 2 | 7,508 | 3754 | | | |
| Colorado | 405 | 2,206,801 | 5449 | 1 | 6,839 | 6839 | 84 | 428,967 | 5107 | 1,030 | 5,565,717 | 5404 | | | | | | |
| Florida | | | | | | | | | | 26 | 179,185 | 6892 | | | | | | |
| Georgia | | | | | | | | | | 2 | 9,305 | 4653 | | | | | | |
| Idaho | | | | | | | 1 | 4,032 | 4032 | 2 | 7,305 | 3653 | | | | | | |
| Illinois | 2,099 | 5,253,901 | 2503 | | | | 22 | 21,982 | 999 | 1,782 | 4,160,373 | 2335 | 3 | 7,098 | 2366 | | | |
| Indiana | 223 | 387,668 | 1738 | | | | 22 | 20,115 | 914 | 387 | 595,134 | 1538 | 1 | 3,075 | 3075 | | | |
| Kansas | 2,261 | 8,106,000 | 3585 | | | | 405 | 1,337,049 | 3301 | 1,981 | 8,082,428 | 4080 | | | | | | |
| Kentucky | 723 | 870,780 | 1204 | | | | 194 | 445,336 | 2296 | 797 | 1,209,188 | 1517 | 5 | 8,972 | 1794 | | | |
| Louisiana | 2,422 | 12,812,955 | 5290 | 234 | 2,621,241 | 11202 | 260 | 1,851,179 | 7120 | 1,231 | 9,580,053 | 7782 | | | | | | |
| North Louisiana | 1,425 | 3,482,494 | 2444 | 45 | 359,749 | 7994 | 143 | 553,732 | 3872 | 537 | 2,427,821 | 4521 | | | | | | |
| South Louisiana | 997 | 9,330,461 | 9359 | 189 | 2,261,492 | 11966 | 117 | 1,297,447 | 11089 | 694 | 7,152,232 | 10306 | | | | | | |
| Maryland | | | | | | | 5 | 23,260 | 4652 | 2 | 8,867 | 4434 | | | | | | |
| Michigan | 202 | 608,373 | 3012 | | | | 20 | 78,549 | 3927 | 290 | 837,688 | 2889 | | | | | | |
| Mississippi | 162 | 1,330,521 | 8213 | 14 | 134,966 | 9640 | 6 | 50,485 | 8414 | 279 | 1,851,941 | 6638 | | | | 1 | 2,370 | 2370 |
| Missouri | 4 | 1,524 | 381 | | | | | | | 21 | 12,172 | 580 | | | | | | |
| Montana | 156 | 836,900 | 5365 | 2 | 7,558 | 3779 | 3 | 10,577 | 3526 | 202 | 891,603 | 4414 | | | | | | |
| Nebraska | 300 | 1,778,308 | 5928 | | | | 4 | 17,415 | 4354 | 543 | 3,048,416 | 5614 | | | | | | |
| Nevada | 1 | 7,500 | 7500 | | | | | | | 5 | 37,328 | 7466 | | | | | | |
| New Mexico | 928 | 4,206,704 | 4533 | 3 | 27,599 | 9200 | 521 | 1,937,119 | 3718 | 274 | 1,183,360 | 4319 | | | | | | |
| New York | 221 | 303,453 | 1373 | | | | 2 | 7,510 | 3755 | | | | 144 | 199,476 | 1385 | | | |
| North Dakota | 168 | 1,293,002 | 7696 | | | | | | | 85 | 501,667 | 5902 | | | | | | |
| Ohio | 639 | 1,506,683 | 2358 | | | | 241 | 456,208 | 1893 | 334 | 584,861 | 1751 | | | | | | |
| Oklahoma | 4,804 | 17,074,545 | 3554 | 42 | 242,164 | 5766 | 306 | 1,062,787 | 3473 | 2,324 | 7,805,786 | 3359 | 61 | 128,376 | 2105 | | | |
| Oregon | | | | | | | | | | 1 | 7,101 | 7101 | | | | | | |
| Pennsylvania | 244 | 382,060 | 1566 | | | | 352 | 1,371,555 | 3996 | 188 | 707,874 | 3765 | 174 | 274,098 | 1575 | 66 | 96,120 | 1602 |
| South Dakota | | | | | | | | | | 12 | 52,476 | 4373 | | | | | | |
| Texas | 11,841 | 50,297,427 | 4248 | 408 | 3,292,183 | 8069 | 559 | 2,732,936 | 4889 | 7,023 | 30,937,049 | 4405 | 109 | 253,743 | 2328 | 1 | 7,740 | 7740 |
| Dist. 1: South Central | 1,124 | 2,753,361 | 2450 | 7 | 62,303 | 8900 | 14 | 69,678 | 4977 | 627 | 1,822,666 | 2907 | | | | | | |
| Dist. 2: Middle Gulf | 296 | 1,777,409 | 6005 | 51 | 391,596 | 7678 | 79 | 396,825 | 5023 | 397 | 2,456,484 | 6188 | | | | | | |
| Dist. 3: Upper Gulf | 818 | 4,578,762 | 5598 | 122 | 1,080,283 | 8855 | 67 | 470,756 | 7026 | 780 | 5,421,519 | 6951 | | | | | | |
| Dist. 4: Lower Gulf-S.W. | 512 | 2,459,064 | 4803 | 129 | 1,020,930 | 7914 | 71 | 335,751 | 4729 | 627 | 3,338,909 | 5325 | 8 | 22,145 | 2768 | 1 | 7,740 | 7740 |
| Dist. 5: East Central | 70 | 233,639 | 3338 | 4 | 35,923 | 8981 | 13 | 84,382 | 6491 | 194 | 748,134 | 3856 | | | | | | |
| Dist. 6: Northeast | 325 | 1,532,495 | 4715 | 56 | 383,539 | 6849 | 60 | 403,097 | 6718 | 311 | 1,671,436 | 5374 | | | | | | |
| Dist. 7-B: North Central | 1,604 | 5,408,027 | 3372 | 1 | 5,346 | 5346 | 42 | 126,407 | 3010 | 1,477 | 4,639,423 | 3141 | 2 | 2,875 | 1438 | | | |
| Dist. 7-C: West Central | 803 | 4,494,197 | 5597 | 4 | 32,825 | 8206 | 29 | 124,660 | 4299 | 398 | 1,873,277 | 4707 | | | | | | |
| Dist. 8: West | 3,302 | 17,324,176 | 5247 | 7 | 85,486 | 12212 | 12 | 73,776 | 6148 | 737 | 4,238,809 | 5751 | 47 | 128,367 | 2731 | | | |
| Dist. 9: North | 2,270 | 7,429,754 | 3273 | 2 | 13,645 | 6823 | 33 | 184,169 | 5581 | 1,383 | 4,221,839 | 3053 | 51 | 97,655 | 1915 | | | |
| Dist. 10: Panhandle | 717 | 2,306,543 | 3217 | 25 | 180,307 | 7212 | 139 | 463,435 | 3334 | 92 | 504,559 | 5484 | 1 | 2,701 | 2701 | | | |
| Utah | 14 | 78,152 | 5582 | | | | 9 | 44,352 | 4928 | 78 | 322,551 | 4135 | | | | | | |
| West Virginia | 80 | 176,153 | 2202 | | | | 443 | 1,185,498 | 2676 | 116 | 322,164 | 2777 | | | | | | |
| Wyoming | 383 | 1,968,236 | 5139 | | | | 31 | 168,501 | 5436 | 363 | 1,715,384 | 4726 | | | | | | |
| Total United States | 30,432 | 121,148,777 | 3981 | 706 | 6,350,145 | 8995 | 3,560 | 13,580,494 | 3815 | 20,452 | 85,102,475 | 4161 | 499 | 882,346 | 1768 | 62 | 106,230 | 1713 |

| STATE OR DISTRICT | SALT WATER DISPOSAL | | | TOTAL NEW WELLS (Preceding Classes) 1955 | | | TOTAL NEW WELLS (Preceding Classes) 1954 | | | OLDWELLSDRILLED DEEPER, 1955 (Productive and Dry) | | | TOTAL ALL WELLS 1955 | | | TOTAL ALL WELLS 1954 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth | Wells | Footage | Avge. Depth |
| Alabama | | | | 43 | 204,191 | 4749 | 69 | 359,753 | 5214 | 2 | 4,206 | 2103 | 45 | 208,397 | 4631 | 71 | 361,459 | 5091 |
| Arizona | | | | 5 | 22,518 | 4504 | 10 | 43,603 | 4360 | | | | 5 | 22,518 | 4504 | 10 | 43,603 | 4360 |
| Arkansas | 1 | 1,630 | 1630 | 784 | 2,530,207 | 3227 | 581 | 2,049,830 | 3528 | 4 | 2,249 | 562 | 788 | 2,532,456 | 3214 | 582 | 2,050,252 | 3523 |
| California | | | | 2,469 | 12,141,529 | 4918 | 2,433 | 11,065,195 | 4548 | 182 | 264,667 | 1454 | 2,651 | 12,406,196 | 4680 | 2,527 | 11,162,412 | 4417 |
| Colorado | | | | 1,520 | 8,208,324 | 5400 | 1,324 | 7,255,077 | 5480 | 3 | 7,149 | 2383 | 1,523 | 8,215,473 | 5394 | 1,325 | 7,255,129 | 5476 |
| Florida | | | | 26 | 179,185 | 6892 | 31 | 195,566 | 6309 | | | | 26 | 179,185 | 6892 | 31 | 195,566 | 6309 |
| Georgia | | | | 2 | 9,305 | 4653 | 8 | 20,508 | 2564 | | | | 2 | 9,305 | 4653 | 8 | 20,508 | 2564 |
| Idaho | | | | 3 | 11,337 | 3779 | 1 | 3,085 | 3085 | | | | 3 | 11,337 | 3779 | 1 | 3,085 | 3085 |
| Illinois | 2 | 5,811 | 2906 | 3,908 | 9,449,165 | 2418 | 3,266 | 7,931,873 | 2429 | 9 | 4,087 | 454 | 3,917 | 9,453,252 | 2413 | 3,270 | 7,933,071 | 2426 |
| Indiana | 1 | 917 | 917 | 634 | 1,006,909 | 1588 | 865 | 1,316,430 | 1522 | 1 | 806 | 806 | 635 | 1,007,715 | 1587 | 868 | 1,317,168 | 1517 |
| Kansas | 22 | 79,888 | 3631 | 4,669 | 17,605,365 | 3771 | 4,222 | 15,005,973 | 3554 | | | | 4,669 | 17,605,365 | 3771 | 4,223 | 15,007,774 | 3554 |
| Kentucky | | | | 1,719 | 2,534,276 | 1474 | 1,428 | 2,735,151 | 1915 | | | | 1,719 | 2,534,276 | 1474 | 1,429 | 2,735,501 | 1914 |
| Louisiana | 4 | 24,843 | 6211 | 4,151 | 26,890,271 | 6478 | 3,630 | 22,651,830 | 6206 | 18 | 43,947 | 2442 | 4,169 | 26,934,218 | 6461 | 3,660 | 22,682,484 | 6197 |
| North Louisiana | 1 | 5,801 | 5801 | 2,151 | 6,829,597 | 3175 | 1,946 | 5,778,702 | 2970 | 8 | 17,231 | 2154 | 2,159 | 6,846,828 | 3171 | 1,948 | 5,780,914 | 2968 |
| South Louisiana | 3 | 19,042 | 6347 | 2,000 | 20,060,674 | 10030 | 1,704 | 16,873,128 | 9902 | 10 | 26,716 | 2672 | 2,010 | 20,087,390 | 9994 | 1,712 | 16,901,570 | 9872 |
| Maryland | | | | 7 | 32,127 | 4590 | 7 | 30,753 | 4393 | | | | 7 | 32,127 | 4590 | 7 | 30,753 | 4393 |
| Michigan | | | | 512 | 1,524,610 | 2978 | 557 | 1,534,855 | 2756 | 8 | 19,079 | 2358 | 520 | 1,543,689 | 2969 | 566 | 1,540,571 | 2722 |
| Mississippi | | | | 462 | 3,370,283 | 7295 | 450 | 3,203,617 | 7119 | 3 | 7,591 | 2530 | 465 | 3,377,874 | 7264 | 450 | 3,203,617 | 7119 |
| Missouri | | | | 25 | 13,696 | 548 | 11 | 11,798 | 1073 | | | | 25 | 13,696 | 548 | 11 | 11,798 | 1073 |
| Montana | | | | 363 | 1,746,638 | 4812 | 349 | 1,406,623 | 4030 | | | | 363 | 1,746,638 | 4812 | 350 | 1,407,178 | 4021 |
| Nebraska | | | | 847 | 4,844,139 | 5719 | 469 | 2,624,696 | 5596 | | | | 847 | 4,844,139 | 5719 | 469 | 2,624,696 | 5596 |
| Nevada | | | | 6 | 44,828 | 7471 | 18 | 77,166 | 4287 | | | | 6 | 44,828 | 7471 | 18 | 77,166 | 4287 |
| New Mexico | | | | 1,726 | 7,354,782 | 4261 | 1,168 | 6,133,214 | 5251 | 7 | 6,739 | 963 | 1,733 | 7,361,521 | 4248 | 1,180 | 6,145,920 | 5208 |
| New York | | | | 367 | 510,439 | 1391 | 423 | 782,403 | 1850 | | | | 367 | 510,139 | 1391 | 423 | 782,403 | 1850 |
| North Dakota | | | | 253 | 1,794,669 | 7094 | 296 | 2,076,265 | 7014 | | | | 253 | 1,794,669 | 7094 | 297 | 2,076,332 | 6991 |
| Ohio | | | | 1,214 | 2,547,752 | 2099 | 1,062 | 2,108,972 | 1986 | 15 | 6,361 | 424 | 1,229 | 2,554,113 | 2078 | 1,076 | 2,116,065 | 1967 |
| Oklahoma | 66 | 151,108 | 2290 | 7,603 | 26,464,766 | 3481 | 7,919 | 27,055,491 | 3417 | 119 | 85,256 | 716 | 7,722 | 26,550,022 | 3438 | 8,073 | 27,146,108 | 3363 |
| Oregon | | | | 1 | 7,101 | 7101 | 1 | 3,684 | 3684 | | | | 1 | 7,101 | 7101 | 1 | 3,684 | 3684 |
| Pennsylvania | | | | 1,018 | 2,831,707 | 2782 | 1,214 | 3,209,986 | 2644 | 10 | 13,801 | 1380 | 1,028 | 2,845,508 | 2768 | 1,233 | 3,228,644 | 2619 |
| North Dakota | | | | 12 | 52,476 | 4373 | 20 | 102,156 | 5108 | | | | 12 | 52,476 | 4373 | 20 | 102,156 | 5106 |
| Tennessee | | | | | | | 18 | 24,330 | 1352 | | | | | | | 18 | 24,330 | 1353 |
| Texas | 12 | 44,881 | 3740 | 19,953 | 87,565,959 | 4389 | 18,539 | 82,279,758 | 4438 | 134 | 221,039 | 1650 | 20,087 | 87,786,998 | 4370 | 18,707 | 82,448,899 | 4407 |
| Dist. 1: S. Cent. | | | | 1,772 | 4,708,002 | 2657 | 1,190 | 3,797,362 | 3191 | 8 | 13,810 | 1726 | 1,780 | 4,721,812 | 2653 | 1,192 | 3,798,360 | 3187 |
| Dist. 2: Middle Gulf | | | | 823 | 5,022,314 | 6102 | 815 | 4,993,068 | 6126 | 5 | 11,400 | 2280 | 828 | 5,033,714 | 6079 | 816 | 4,993,619 | 6120 |
| Dist. 3: Upper Gulf | 2 | 1,671 | 836 | 1,789 | 11,552,991 | 6458 | 1,760 | 11,698,015 | 6647 | 11 | 17,193 | 1563 | 1,800 | 11,570,184 | 6428 | 1,767 | 11,708,003 | 6626 |
| Dist. 4: L. Gulf-S.W. | 3 | 8,342 | 2781 | 1,351 | 7,192,581 | 5324 | 1,413 | 7,353,949 | 5204 | 12 | 14,949 | 1246 | 1,363 | 7,207,830 | 5288 | 1,424 | 7,366,877 | 5173 |
| Dist. 5: East Central | | | | 281 | 1,102,078 | 3922 | 321 | 1,208,106 | 3764 | | | | 281 | 1,102,078 | 3922 | 322 | 1,210,777 | 3760 |
| Dist. 6: Northeast | 2 | 7,300 | 3650 | 754 | 3,997,867 | 5302 | 777 | 4,511,700 | 5807 | 3 | 9,244 | 3081 | 757 | 4,007,111 | 5293 | 780 | 4,516,593 | 5791 |
| Dist. 7-B: N. Central | 1 | 1,982 | 1982 | 3,127 | 10,184,060 | 3257 | 3,035 | 9,524,987 | 3138 | 21 | 26,046 | 1240 | 3,148 | 10,210,106 | 3243 | 3,055 | 9,535,650 | 3121 |
| Dist. 7-C: W. Central | | | | 1,234 | 6,524,959 | 5288 | 1,285 | 6,673,721 | 5194 | 12 | 15,353 | 1279 | 1,246 | 6,540,312 | 5249 | 1,299 | 6,683,015 | 5145 |
| Dist. 8: West | 1 | 13,394 | 13394 | 4,106 | 21,864,008 | 5325 | 2,892 | 16,997,849 | 5878 | 42 | 91,041 | 2168 | 4,148 | 21,955,049 | 5293 | 2,957 | 17,091,256 | 5780 |
| Dist. 9: North | 2 | 7,190 | 3595 | 3,741 | 11,954,252 | 3195 | 4,098 | 12,348,509 | 3013 | 18 | 18,312 | 1017 | 3,759 | 11,972,564 | 3185 | 4,139 | 12,369,013 | 2986 |
| Dist. 10: Panhandle | 1 | 5,002 | 5002 | 975 | 3,462,547 | 3551 | 953 | 3,172,492 | 3329 | 2 | 3,691 | 1846 | 977 | 3,466,238 | 3548 | 956 | 3,175,736 | 3323 |
| Utah | | | | 101 | 445,055 | 4406 | 69 | 305,564 | 4428 | 1 | 563 | 563 | 102 | 445,618 | 4369 | 69 | 305,564 | 4428 |
| Virginia | | | | | | | 22 | 105,570 | 4799 | | | | | | | 22 | 105,570 | 4799 |
| Washington | | | | | | | 8 | 20,004 | 2501 | | | | | | | 8 | 20,004 | 2501 |
| West Virginia | | | | 639 | 1,683,815 | 2635 | 572 | 1,656,347 | 2896 | | | | 639 | 1,683,815 | 2635 | 572 | 1,656,347 | 2896 |
| Wyoming | | | | 777 | 3,852,121 | 4958 | 1,117 | 5,909,032 | 5290 | 8 | 8,010 | 1001 | 785 | 3,860,131 | 4917 | 1,120 | 5,914,068 | 5280 |
| Total United States | 108 | 309,078 | 2862 | 55,819 | 227,479,545 | 4075 | 52,197 | 211,296,158 | 4048 | 524 | 695,550 | 1327 | 56,343 | 228,175,095 | 4050 | 52,695 | 211,739,885 | 4018 |

BE MODERN—BUY WILSON

# DEPTH, SIZE or TYPE

Wilson RIGS

# MEET YOUR NEED

***WHATEVER YOUR REQUIREMENTS... THERE'S A WILSON RIG OF THE RIGHT SIZE AND TYPE FOR YOU!***

Shown in the illustration is a new Wilson Giant Torcair drilling rig.

- The mast is Wilson's new Giant 126 foot portable drilling mast. It has a rated hook load capacity of 350,000 lbs. with 8 lines strung.
- One unique feature of this mast is that the ease of operation surpasses that of many smaller masts. Its erection is fully hydraulic, the same efficient system that is on the 96 foot Wilson production masts.
- The racking platform automatically folds out into working position at a desired height to accommodate the racking of trebles.
- The rig is a Wilson Giant Double Drum Torcair model powered by two WAKBU Waukesha engines with torque converters. It has an ample power capacity for efficient 8,000 foot work.

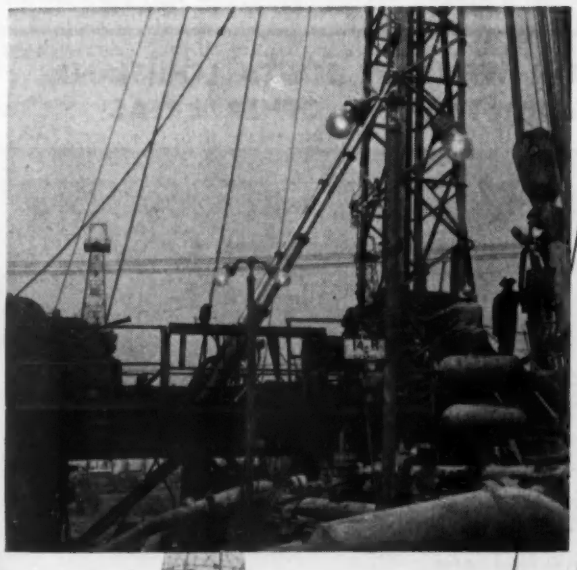
Wilson **WILSON MANUFACTURING CO., INC.**

WICHITA FALLS, TEXAS, U.S.A.

*The Home of RED IRON*

Photograph at right shows the location of driller's controls, mounted on hinged "Y" base of the mast. Extreme lower left of photo shows hydraulic controls for raising and telescoping mast operations.

Driller is located to have the best position possible for full view of work at all time.



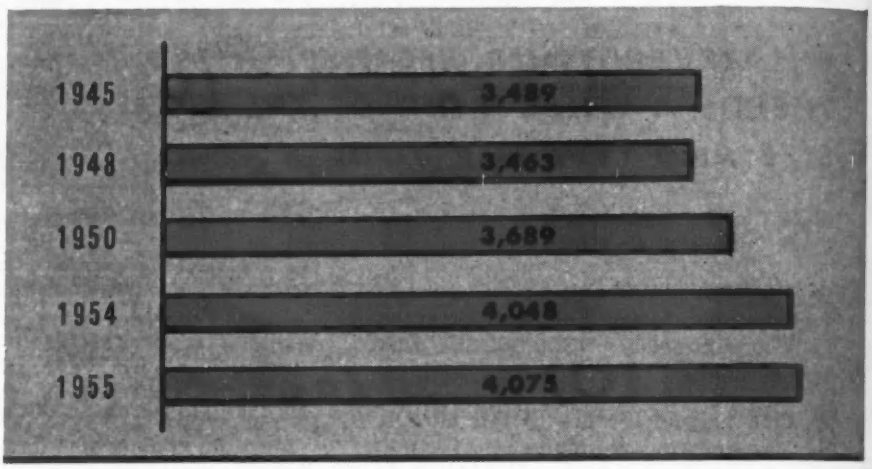
# Average Depth Per Well . . . 1955's 4075 average 27 feet per well deeper than in '54 . . . 24 feet deeper than '52 record.

WELL DEPTHS averaged 4075 feet per well last year—27 feet per well deeper than in 1954—and 24 feet deeper than the previous record average of 4051 feet set in 1952.

During 1955, there were 55,819 new wells completed for a total depth of 227,479,545 feet—a new record. This compares with the previous record total depth of 211,296,158 feet which was reported in 1954.

Of the 55,819 completions, 30,432 were oil producers with an average depth of 3981 feet per well—47 feet shallower than the 4028-foot average in 1954. There were 20,452 dry holes averaging 4161 feet per well compared to the 4004-foot average the previous year. The depth average of 4075 feet per well in 1955 was 730 feet per well deeper than the 3345-foot average in 1946—and 386 feet deeper than the 3689-foot average in 1950.

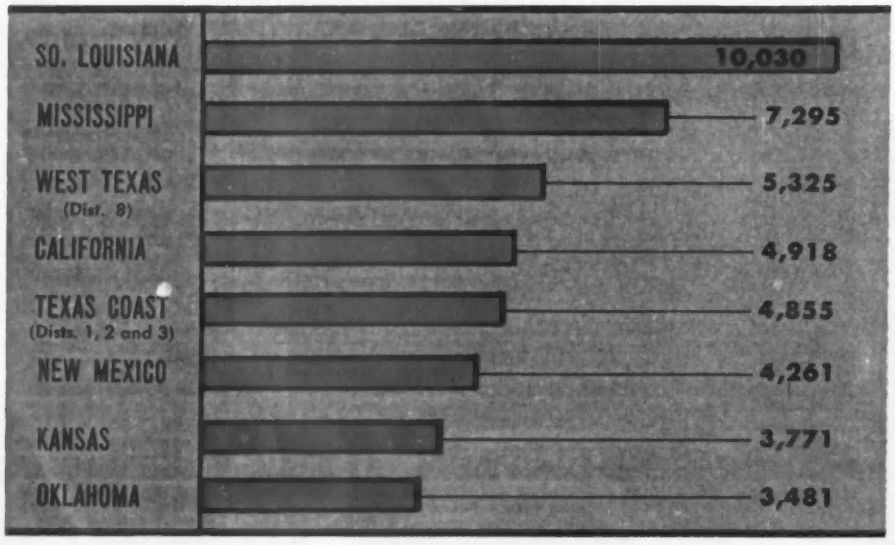
**AVERAGE DEPTH OF U. S. COMPLETIONS INCREASING**




# Greatest Well Depths . . . Mississippi Delta region averaging 10,030 feet per well, more than double national average.

SOUTH LOUISIANA is leaving all other areas far behind in average depth per well. The Mississippi Delta region's 2000 new well completions in 1955 averaged 10,030 feet per well—more than double the national average of 4075 feet. And the depth is increasing every year, i.e., 9902 feet in 1953, and 9616 feet in 1954.

**DEPTH OF NEW WELLS IN SOUTH LOUISIANA FAR GREATER THAN IN OTHER AREAS**




The nearest area to South Louisiana (with a significant number of new wells) was Mississippi which had 462 new completions averaging 7295 feet—a slight depth increase over 1954. North Dakota with 253 new wells, averaged 7094 feet. New wells in the Upper Gulf Coast area had an average depth of 6458 feet, while those in the Middle Gulf Coast area averaged 6102 feet.

Among the top oil-producing states, Texas reported an average depth per well of 4,389 feet—California averaged 4918 feet per well—Oklahoma, 3481 feet—Kansas, 3771 feet—New Mexico, 4261 feet—and Illinois, 2418 feet.

# Owners of New Wells . . . Almost 80 percent of wells drilled in '55 owned by smaller operators.

THE TREND toward greater small company participation in U. S. drilling activity continued in 1955. Of the 55,819 wells completed in the U. S. last year, 44,513 or 79.75 percent were owned by small companies or individual operators. This is a 1.65 percent increase over 1954. On the other hand, the 23 largest producing companies owned only 20.25 percent, or 11,306 of the wells.

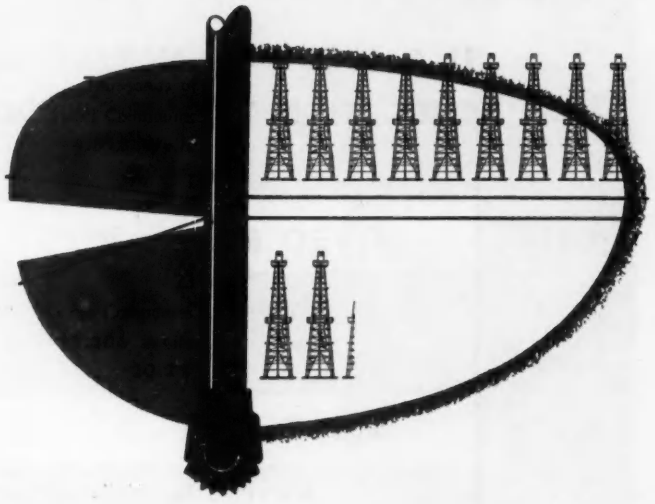
The smaller companies also gained in participation during 1954. Of the 52,197 wells drilled, the 23 largest producing companies owned 21.9 percent, or 11,431 of the wells. This meant that thousands of small producers owned 78.1 percent of the wells drilled in the year, or 40,766 wells.

In comparison, during 1953 the 23 largest companies owned 23 percent, or 11,385 of the 49,480 wells completed; while small companies owned 77 percent.

During 1952, the 23 largest companies drilled 10,738 wells, or 23.1 percent of the 46,507 wells completed. At the same time, small producers drilled 35,769 wells, or 76.9 percent of the total.

**The 23 largest U. S. producing companies include the following: Amerada Petroleum, Atlantic Refining, Carter Oil, Cities Service, Continental Oil, Gulf Oil, Humble Oil & Refining, Ohio Oil, Phillips Petroleum, Pure Oil, Richfield Oil, Shell Oil, Sinclair Oil, Skelly Oil, Socony-Mobil (including Magnolia Petroleum and General Petroleum), Standard Oil of California (including The California Company and Standard of Texas), Standard Oil of Indiana (including Stanolind Oil & Gas, Pan American and Pan-Am Southern), Standard of Ohio (including Sohio Petroleum), Sun Oil, Sunray Mid-Continent Oil, The Texas Company, Tide Water Associated Oil, and Union Oil.**

**WHO OWNS NEW WELLS**



# Drilling Methods . . . Rotary rigs still the favorite . . . 86.5 percent of '55 wells drilled by rotary methods.

PREFERENCE for rotary drilling rigs over cable tool methods continued to increase during 1955.

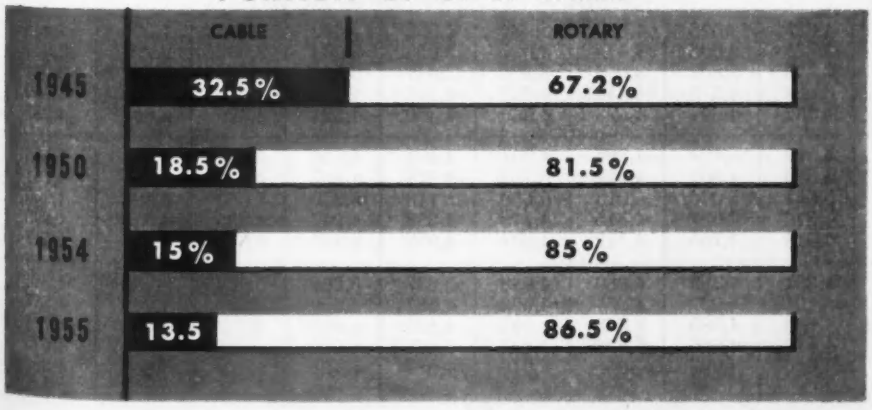
It is estimated that 86.5 percent of all wells completed in the U. S. last year were drilled by rotary rigs. In 1954, rotary rigs were used to drill 85 percent of all U. S. wells.

Of the 55,819 new wells drilled in 1955, rotary drilling accounted for an estimated 48,119. The previous year, 44,368 of the 52,197 new wells completed were drilled by rotary methods.

Within 10 years, rotary drilling has shown a 19.3 percent increase in popularity (rotary rigs accounted for only 67.2 percent of all wells drilled in 1945, compared to 86.5 percent last year). Nearly three times as many wells were drilled in 1955 by rotary methods as in 1945.

On the other hand, cable tool methods accounted for only 13.5 percent of the 1955 wells, or 7700 completions—a 1.5 percent drop from 1954. In 1945, cable tool drilling accounted for 32.8 percent of all wells drilled.

**ROTARY RIGS DRILL INCREASING PORTION OF U. S. WELLS**

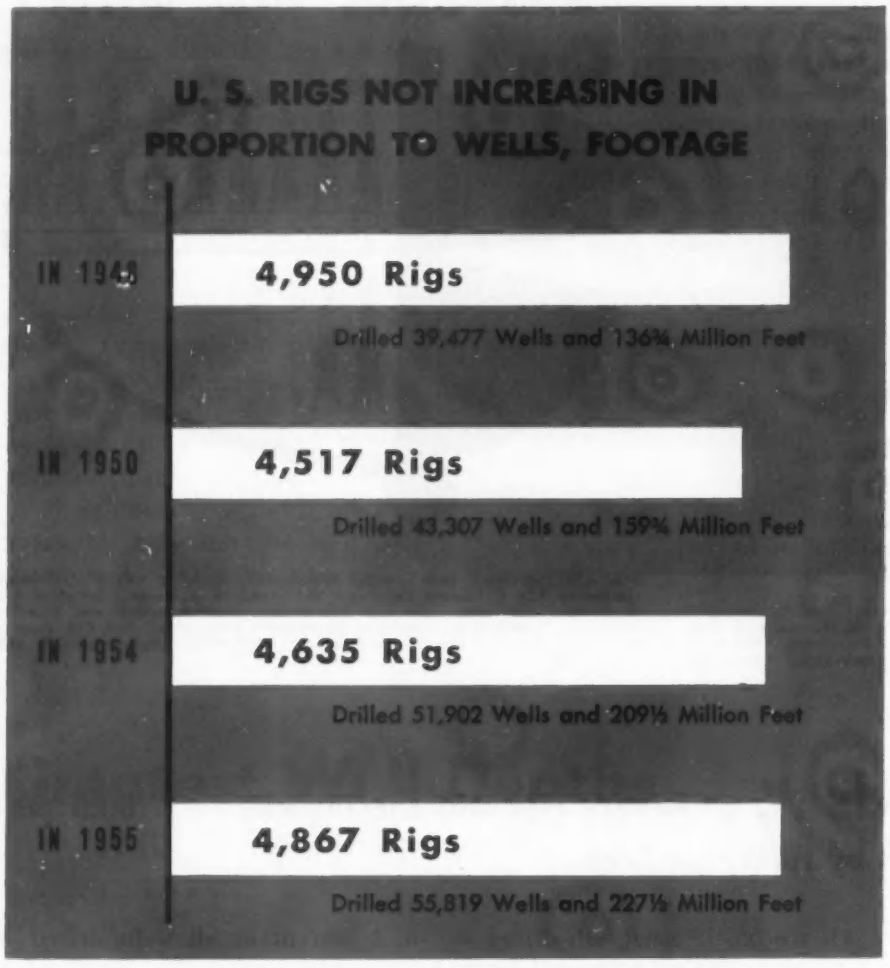



**Estimated Number and Percentages of Wells Drilled in U. S. by Rotary and Cable Tool Methods, by Years**

| YEAR | Total New Wells | ROTARY | | CABLE | |
|---|---|---|---|---|---|
| | | Wells | Percent | Wells | Percent |
| 1945..... | 26,649 | 17,908 | 67.2 | 8,741 | 32.8 |
| 1946..... | 30,230 | 20,859 | 69.0 | 9,371 | 31.0 |
| 1947..... | 33,147 | 23,269 | 70.2 | 9,878 | 29.8 |
| 1948..... | 39,477 | 29,410 | 74.5 | 10,067 | 25.5 |
| 1949..... | 38,962 | 30,975 | 79.5 | 7,987 | 20.5 |
| 1950..... | 43,307 | 35,295 | 81.5 | 8,012 | 18.5 |
| 1951..... | 45,996 | 37,717 | 82.0 | 8,279 | 18.0 |
| 1952..... | 46,507 | 38,368 | 82.5 | 8,139 | 17.5 |
| 1953..... | 49,480 | 41,316 | 83.5 | 8,164 | 16.5 |
| 1954..... | 52,197 | 44,368 | 85.0 | 7,829 | 15.0 |
| 1955..... | 55,819 | 48,119 | 86.5 | 7,700 | 13.5 |

# Rigs in Operation . . . Sharp upturn in '55 ends two-year decline . . .

## 4867 monthly average active.


U. S. RIGS NOT INCREASING IN PROPORTION TO WELLS, FOOTAGE
IN 1948
4,950 Rigs
Drilled 39,477 Wells and 136¾ Million Feet
IN 1950
4,517 Rigs
Drilled 43,307 Wells and 159¾ Million Feet
IN 1954
4,635 Rigs
Drilled 51,902 Wells and 209½ Million Feet
IN 1955
4,867 Rigs
Drilled 55,819 Wells and 227½ Million Feet

UNITED STATES DRILLING RIG activity took a sharp swing upward in 1955 after a two-year steady decline. The average number of operating rigs at the end of each month was 4867—the greatest number since 1948 when a monthly average of 4950 rigs were in operation.

During 1955, an average of 232 more rigs were operating at the end of each month than for the same periods in 1954—and 83 rigs more per month than in 1953. As a result, the number of wells drilled and total footage both set new records.

Drilling rig activity started the year at a moderate pace with 4502 rigs active in January and 4456 in February, the year's low total.

Activity picked up in March and continued a steady increase through August when 5019 rigs were active. After a slight drop to 4987 rigs in September, the total again picked up, reaching a peak in November with 5160 rigs in operation.

There were three months during 1955 (August, October and November) in which more than 5000 rigs were operating, compared to no 5000-rig months in 1954 and only one in 1953. In 1952, 5000 or more rigs were active during six months of the year—the biggest total since 1948 when seven 5000-rig months were reported.

**Drilling Rigs in Use in U. S., by Years, by Months**

Figures are for end of month, and include rigs drilling, rigging up, and shut down

| YEAR | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Avg. for Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1938.... | 3,968 | 3,928 | 3,973 | 3,971 | 3,582 | 4,830 | 3,737 | 3,869 | 3,742 | 3,876 | 3,676 | 3,434 | 3,799 |
| 1939.... | 3,583 | 3,391 | 3,448 | 3,630 | 3,695 | 3,726 | 3,567 | 3,718 | 3,625 | 3,905 | 3,981 | 3,924 | 3,683 |
| 1940.... | 3,990 | 4,277 | 4,472 | 4,327 | 4,655 | 4,502 | 4,235 | 4,194 | 3,821 | 3,921 | 4,030 | 3,894 | 4,193 |
| 1941.... | 3,814 | 3,952 | 4,121 | 4,287 | 4,335 | 4,598 | 4,819 | 4,984 | 4,693 | 4,672 | 4,746 | 4,336 | 4,446 |
| 1942.... | 3,816 | 3,067 | 2,979 | 2,859 | 2,868 | 2,905 | 3,179 | 3,007 | 2,953 | 3,094 | 2,962 | 2,797 | 3,041 |
| 1943.... | 2,691 | 2,653 | 2,732 | 2,756 | 2,743 | 2,852 | 3,015 | 3,201 | 3,031 | 3,548 | 3,676 | 3,595 | 3,041 |
| 1944.... | 3,427 | 3,568 | 3,702 | 3,819 | 3,934 | 4,278 | 4,411 | 4,528 | 4,566 | 4,738 | 4,665 | 4,640 | 4,190 |
| 1945.... | 4,270 | 4,154 | 4,159 | 4,374 | 4,637 | 4,394 | 4,424 | 4,289 | 4,356 | 4,521 | 4,426 | 4,637 | 4,387 |
| 1946.... | 4,337 | 4,229 | 4,212 | 4,405 | 4,399 | 4,124 | 4,235 | 4,201 | 4,474 | 4,410 | 4,551 | 4,654 | 4,353 |
| 1947.... | 4,390 | 4,402 | 4,379 | 4,470 | 4,603 | 4,802 | 4,992 | 5,163 | 4,979 | 4,897 | 4,871 | 4,945 | 4,741 |
| 1948.... | 4,699 | 4,542 | 4,626 | 4,989 | 5,067 | 5,090 | 5,013 | 5,058 | 5,116 | 5,229 | 5,060 | 4,908 | 4,950 |
| 1949.... | 4,511 | 4,490 | 4,368 | 4,265 | 4,276 | 4 097 | 4,015 | 4,118 | 4,258 | 4,247 | 4,485 | 4,355 | 4,290 |
| 1950.... | 4,180 | 4,169 | 4,114 | 4,224 | 4,518 | 4,760 | 4,712 | 4,804 | 4,633 | 4,773 | 4,649 | 4,665 | 4,517 |
| 1951.... | 4,275 | 4,339 | 4,435 | 4,600 | 4,831 | 4,762 | 4,989 | 4,988 | 5,237 | 5,260 | 5,234 | 5,182 | 4,844 |
| 1952.... | 5,010 | 5,015 | 5,092 | 5,093 | 5,151 | 5,037 | 4,694 | 4,508 | 4,687 | 4,659 | 4,689 | 4,649 | 4,857 |
| 1953.... | 4,585 | 4,585 | 4,611 | 4,661 | 4,693 | 4,935 | 4,878 | 4,997 | 4,879 | 4.939 | 5,047 | 4,802 | 4,784 |
| 1954.... | 4,597 | 4,743 | 4,732 | 4,709 | 4,716 | 4,656 | 4,616 | 4,439 | 4,467 | 4,581 | 4,685 | 4,680 | 4.635 |
| 1955.... | 4,502 | 4,456 | 4,683 | 4,713 | 4,816 | 4,997 | 4,965 | 5,019 | 4,987 | 5,124 | 5,160 | 4,987 | 4,867 |

# NOW . . . you can fill casing from bottom more efficiently than ever!

## RECTOR Type "O" Fill Shoe and Fill Collar

Used in conjunction with each other, Rector Type "O" Fill Shoe and Fill Collar provide an automatic constant fill; increase operating flexibility while running casing and during cementing operations. They reduce running time, increase safety, efficiency and economy and minimize the danger of sticking pipe.

**RUNNING TIME REDUCED** because manual fill is eliminated.

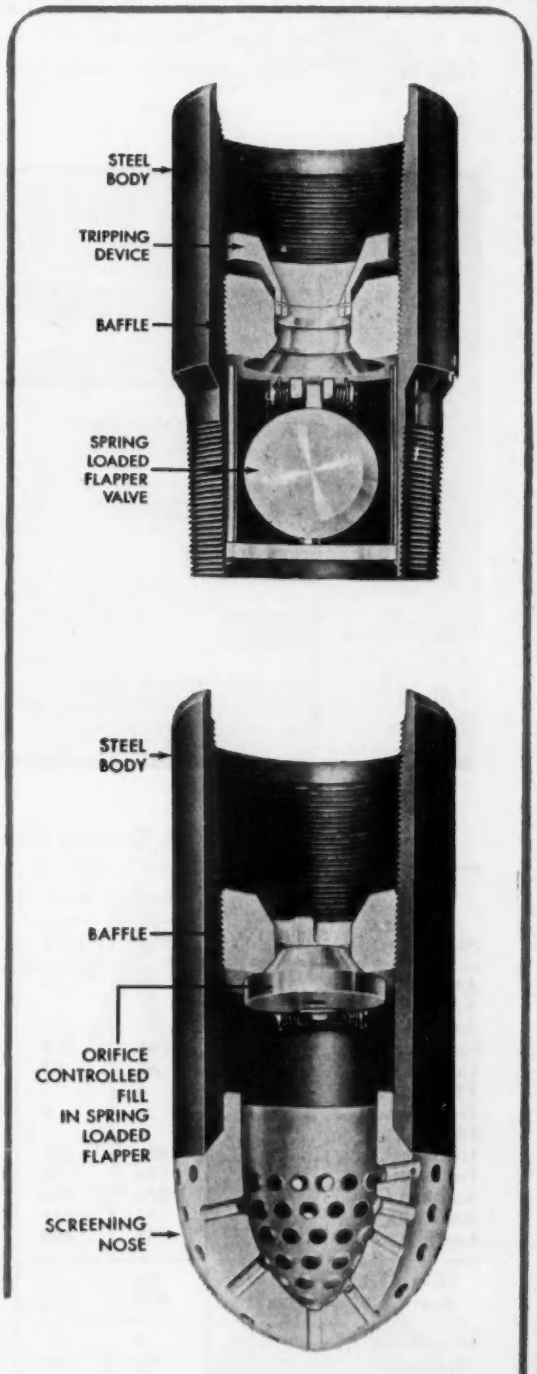
**PIPE STICKING MINIMIZED** because no "stops" are required to fill from top.

**REDUCES PRESSURE SURGE** and danger of breaking-down formations, causing lost circulation and loss of drilling fluids.

**UNRESTRICTED PASSAGE OF FLUID** permits greater volumes through shoe and collar at reduced pump pressures with higher velocity in annulus.

**ORIFICE FILL AFTER CIRCULATION.** You can stop and circulate as often and long as desired with continued orifice fill when running is resumed.

**CONVERTS TO FLOAT WHEN DESIRED,** by tripping flapper valve in collar which provides positive closure.




• Internal parts of both shoe and collar are a special aluminum alloy which has greater strength and abrasion resistance, plus easier and faster drill out.

The Type "O" Fill Shoe has a perforated aluminum alloy nose and baffle which is equipped with spring-loaded flapper valve with orifice choke. Orifice inserts are available in various choke diameters engineered for all pipe sizes.

The Type "O" Fill Collar has an aluminum alloy baffle, spring-loaded flapper valve and shear pin assembly for holding valve open. It functions as a back pressure valve or float collar. The flapper valve can be closed at any time by dropping a trip ball in casing at surface. At 650 p.s.i. pump pressure the ball releases flapper valve to provide a positive closure. Ball gravitates, or is pumped into nose of shoe.

If casing is run to total depth with orifice fill, ball is not used. Seating of cement plug on fill collar releases and closes flapper valve which then acts as back pressure valve, providing positive flow-back control.

OUR 25th YEAR

RECTOR WELL EQUIPMENT COMPANY INC

★ MAKING THE OIL INDUSTRY SAFER

1100 NORTH COMMERCE ST. FORT WORTH, TEXAS

Houston Plant: 2215 Commerce St.

REPRESENTATIVES IN ALL ACTIVE FIELDS

# Location of U. S. Rigs . . . Louisiana lures drillers . . . Texas shows

## 1472 rigs operating at year's end.

THE BIT BORES deeper in south Louisiana—sometimes more than three miles. And the costs soar higher—sometimes up to $2 million.

Even so, the marshes of Jean La-Fitte country offer an irresistible lure to U. S. drillers. Last December 31 there were 333 rigs operating in south Louisiana—94 more than on the same date in 1954.

In Texas, where depths and expenses are more normal, drilling rig activity continued at a record-breaking pace. At year's end, 1472 rigs were in operation—101 more than the previous year.

New Mexico continued its bid to be included among the top oil producing states, reporting 167 rigs at the end of December—64 more than were operating on the same date in 1954.

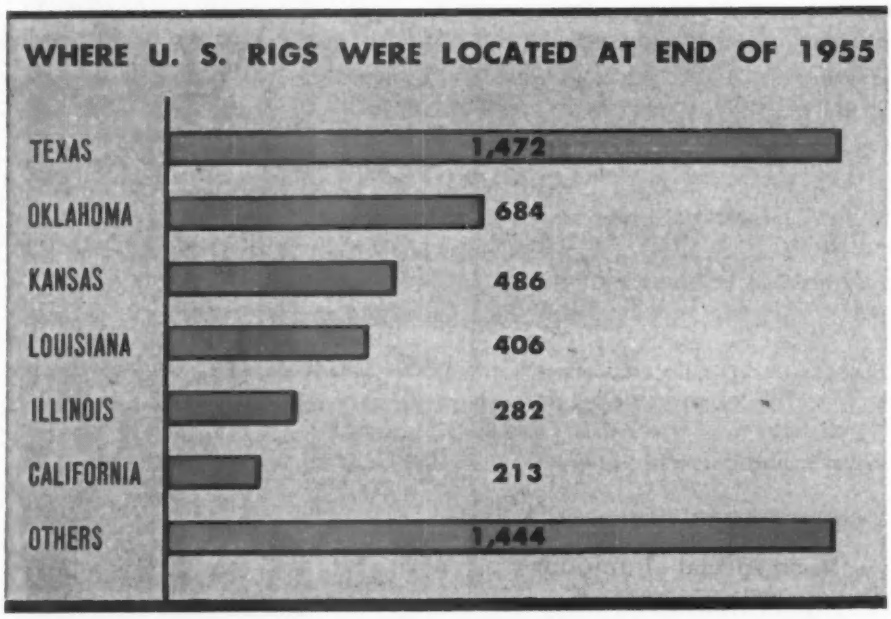
Kansas and Oklahoma also showed increases in rig activity. Kansas had 486 rigs operating in December, eight more than in 1954—and Oklahoma reported 684 rigs, an increase of nine over the previous year.

Of the seven leading oil states (five are mentioned above), only California and Illinois showed decreases in total active rigs. There were 32 less rigs (213) in California at year's end than in 1954, and Illinois showed a drop of 24 rigs (282) compared to 1954.

These states—Louisiana, Texas, California, Oklahoma, Kansas, New Mexico and Illinois—accounted for 3710 rigs, or 74 percent of the 4987 rigs operating on December 31.

Ohio reported 212 rigs, up 16 over 1954, and West Virginia 168, up 2.

Of the remaining 19 states showing drilling rig activity, 11 had increases in number of rigs, six had decreases and two—Alabama, 9, and Colorado, 82—remained the same as 1954.



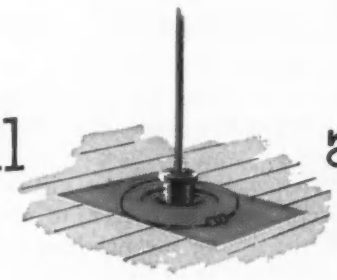

**U. S. Drilling Rigs in Operation, By States, End of 1955 and 1954**

| State and District | End of Year 1954 | End of Year 1955 | Change Rigs | Change Percent |
|---|---|---|---|---|
| Alabama | 9 | 9 | .... | .... |
| Arizona | 1 | .... | — 1 | .... |
| Arkansas | 33 | 45 | + 12 | + 36.4 |
| California | 245 | 213 | — 32 | — 13.1 |
| Colorado | 82 | 82 | ..... | ..... |
| Florida | 4 | 3 | — 1 | — 25.0 |
| Georgia | .... | 2 | + 2 | ..... |
| Idaho | 1 | .... | — 1 | ..... |
| Illinois | 306 | 282 | — 24 | — 7.9 |
| Indiana | 110 | 99 | — 11 | — 10.0 |
| Kansas | 478 | 486 | + 8 | + 1.7 |
| Kentucky | 92 | 121 | + 29 | + 31.5 |
| Louisiana | 294 | 406 | +112 | + 38.1 |
| North Louisiana | 55 | 73 | + 18 | + 32.7 |
| South Louisiana | 239 | 333 | + 94 | + 39.3 |
| Maryland | 3 | .... | — 3 | ..... |
| Michigan | 96 | 83 | — 13 | — 13.6 |
| Mississippi | 42 | 43 | + 1 | + 2.4 |
| Missouri | 4 | 2 | — 2 | — 50.0 |
| Montana | 51 | 45 | — 6 | — 11.8 |
| Nebraska | 34 | 39 | + 5 | + 14.7 |
| Nevada | 6 | 5 | — 1 | — 16.7 |
| New Mexico | 103 | 167 | + 64 | + 62.1 |
| New York | 40 | 48 | + 8 | + 20.0 |
| North Dakota | 25 | 26 | + 1 | + 4.0 |
| Ohio | 196 | 212 | + 16 | + 8.2 |
| Oklahoma | 675 | 684 | + 9 | + 1.3 |
| Oregon | 1 | .... | + 1 | ..... |
| Pennsylvania | 112 | 120 | + 8 | + 7.1 |
| South Dakota | 1 | 2 | + 1 | +100.0 |
| Tennessee | .... | .... | ..... | ..... |
| Texas | 1,371 | 1,472 | +101 | + 7.4 |
| Dist. 1: South Central | 48 | 47 | — 1 | — 2.1 |
| Dist. 2: Middle Gulf | 35 | 42 | + 7 | + 20.0 |
| Dist. 3: Upper Gulf | 132 | 136 | + 4 | + 3.0 |
| Dist. 4: L. Gulf-S.W. | 71 | 73 | + 2 | + 2.8 |
| Dist. 5: East Central | 19 | 13 | — 6 | — 31.6 |
| Dist. 6: Northeast | 50 | 76 | + 26 | + 52.0 |
| Dist. 7-B: N. Central | 155 | 173 | + 18 | + 11.6 |
| Dist. 7-C: W. Central | 139 | 123 | — 16 | — 11.5 |
| Dist. 8: West | 401 | 438 | + 37 | + 9.2 |
| Dist. 9: North | 242 | 257 | + 15 | + 6.2 |
| Dist. 10: Panhandle | 79 | 94 | + 15 | + 19.0 |
| Utah | 23 | 29 | + 6 | + 26.1 |
| Washington | .... | .... | .... | ..... |
| West Virginia | 166 | 168 | + 2 | + 1.2 |
| Wyoming | 76 | 94 | + 18 | + 23.7 |
| Total | 4,680 | 4,987 | +307 | + 6.6 |

Everything?..

Yes. Everything!

...to drill

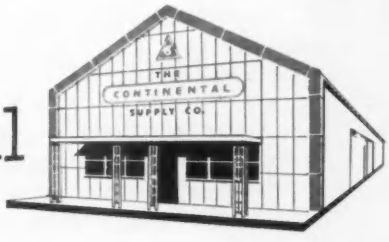


and produce

oil and gas wells

is available at

Continental

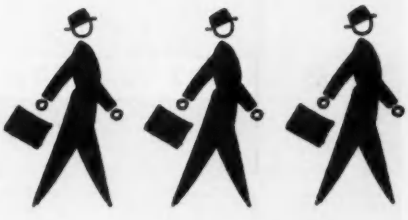



..the Continental

Supply Company

is serving the

Oil and Gas Industries with

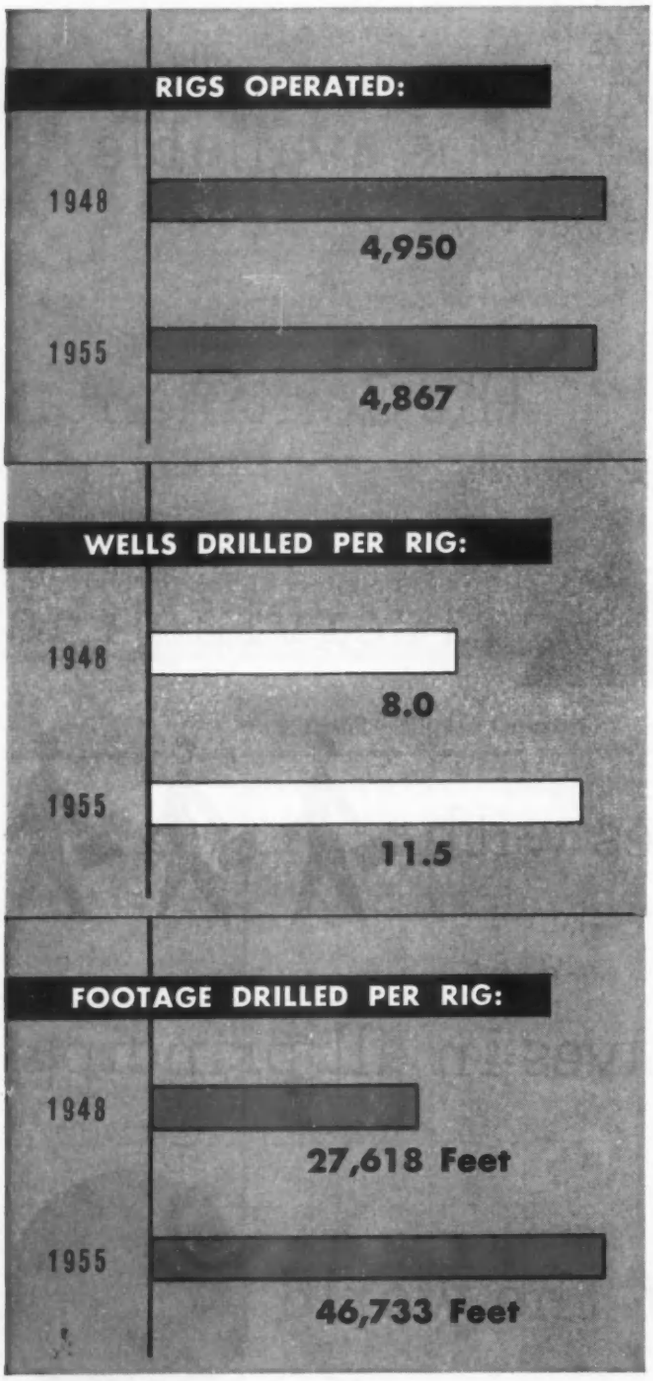


representatives in all principal

oil fields of the world

# Penetration Rates . . . Footage drilled per rig sets record for tenth straight year with an average of 46,739 feet.

## SHARP GAIN IN FOOTAGE AND WELLS DRILLED PER U.S. RIG




FOR THE TENTH year in a row, U. S. drillers set new records in footage drilled per rig. During 1955, an average of 46,739 feet was drilled per rig operated. This is an average 1152 feet deeper than the previous record year of 1954.

Faster penetration rates enabled drillers to increase their depth total 7.7 percent to 227.5 million feet—a new record. In setting the new mark, a monthly average of 4867 rigs were used to drill 55,819 new wells for a 6.9 percent increase over the 1954 record total.

In 1954, drilling activity averaged 4635 rigs per month —52,197 wells were completed—and the total depth was 211,296,158 feet, an average of 45,587 feet per rig.

An upward trend in amount of footage drilled per rig has existed since the end of World War II. More than twice as much footage per rig was drilled in 1955 as in either 1946 or 1947, yet there was only a 12 percent increase in operating rigs—4867 compared to 4353 ten years ago.

Drilling of 46,739 feet per rig last year represented a substantial growth in penetration rates. It constituted a 101 percent increase over 1946. In contrast, the drilling of 41,478 feet of hole per rig in 1953 represented a 78.5 percent increase in penetration rates over 1946. There was a 94.6 percent increase in 1954.

Each operating rig drilled an average of 11.2 wells last year, 0.9 of a well more than in 1954—and 4.3 wells per rig or 65 percent more than the 6.9 wells per rig average in 1946.

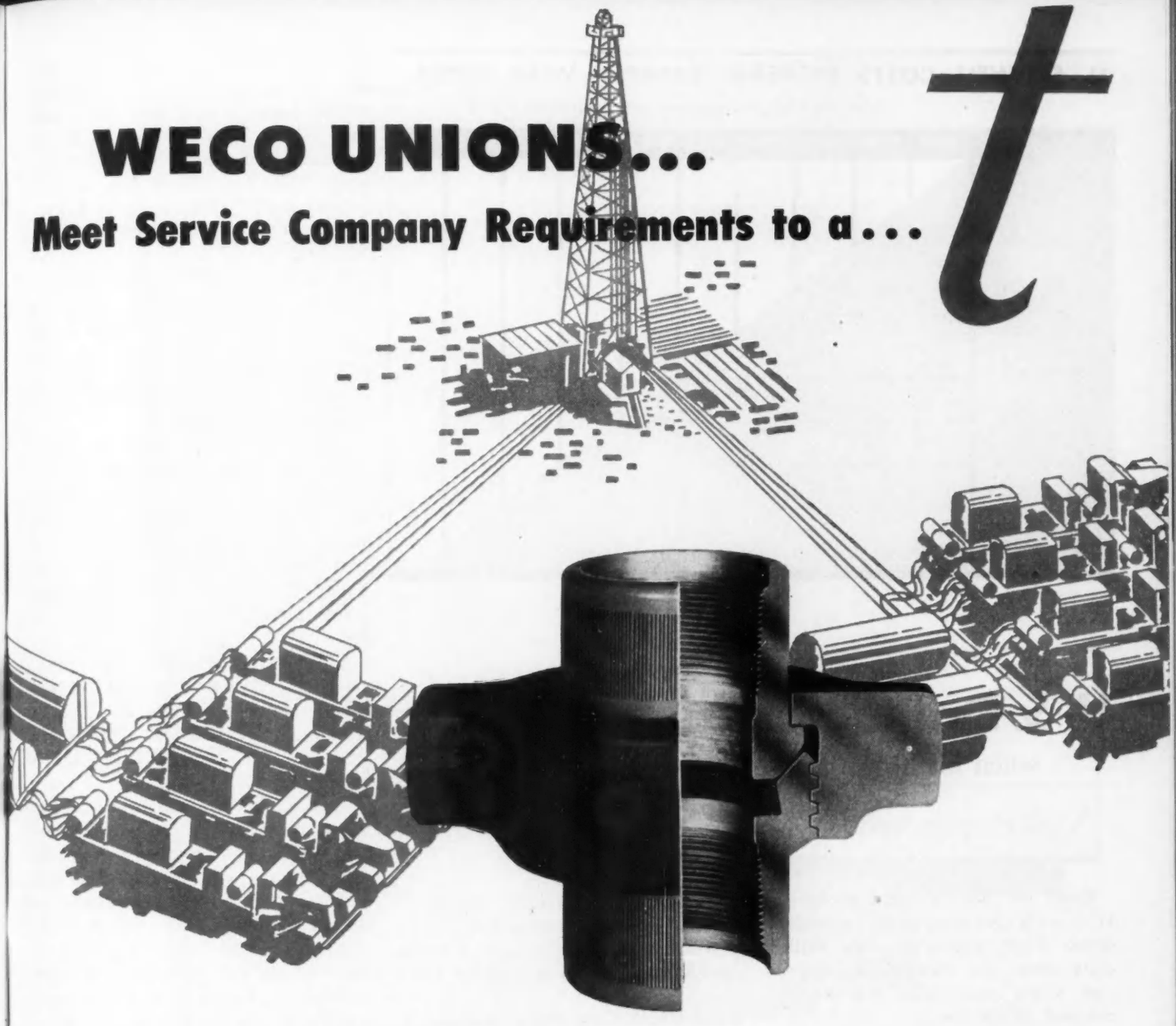
The increasing ability to drill more holes with fewer rigs is illustrated in the following comparison: There were 83 more rigs operating at the end of each month in 1948 than in 1955—yet 16,342 fewer wells were drilled with 90¾ million less feet of hole.

**Average Wells and Footage Drilled Annually Per Rig in U. S.**

| YEAR | Wells Drilled | Footage Drilled | Average Rigs Operating | Wells Drilled Per Rig | Footage Drilled Per Rig |
|---|---|---|---|---|---|
| 1938 | 29,127 | 90,585,158 | 3,799 | 7.7 | 23,844 |
| 1939 | 28,012 | 85,523,094 | 3,683 | 7.6 | 23,221 |
| 1940 | 31,149 | 96,182,605 | 4,193 | 7.4 | 22,933 |
| 1941 | 32,510 | 99,347,714 | 4,446 | 7.3 | 22,345 |
| 1942 | 21,990 | 67,903,053 | 3,041 | 7.2 | 22,329 |
| 1943 | 20,349 | 61,991,857 | 3,041 | 6.7 | 20,385 |
| 1944 | 25,786 | 84,378,457 | 4,190 | 6.2 | 20,138 |
| 1945 | 26,649 | 92,982,113 | 4,387 | 6.1 | 21,195 |
| 1946 | 30,230 | 101,124,813 | 4,353 | 6.9 | 23,231 |
| 1947 | 33,147 | 112,816,124 | 4,741 | 7.0 | 23 796 |
| 1948 | 39,477 | 136,709,153 | 4,950 | 8.0 | 27,618 |
| 1949 | 38,962 | 138,616,941 | 4,290 | 9.1 | 32,312 |
| 1950 | 43,307 | 159,761,732 | 4,517 | 9.6 | 35,369 |
| 1951 | 45,996 | 176,757,221 | 4,844 | 9.5 | 36,490 |
| 1952 | 46,509 | 188,378,059 | 4,857 | 9.6 | 38,785 |
| 1953 | 49,480 | 198,431,603 | 4,784 | 10.3 | 41,478 |
| 1954 | 52,197 | 211,296,158 | 4,635 | 11.2 | 45,587 |
| 1955 | 55,819 | 227,479,545 | 4,867 | 11.4 | 46,739 |

# WECO UNIONS...

## Meet Service Company Requirements to a... *t*



***Fracturing, cementing, and acidizing demand a union that can take it . .***

These services require a union that makes-up and breaks-out fast, a union that seals securely on job after job, a union that withstands the severe abrasive action and extremely high pressures and volumes of these operations.

*And WECO Unions can take it.* Their famous ball and cone seat forms a positive, leak-proof seal . . . their rugged Acme threads make-up and break-out fast . . . their extra tough sub ends and wing nuts take constant abuse—and ask for more—day after day.

• *Because WECO Unions fulfill these demanding requirements so successfully they are used by the majority of service companies.*

U-16-55

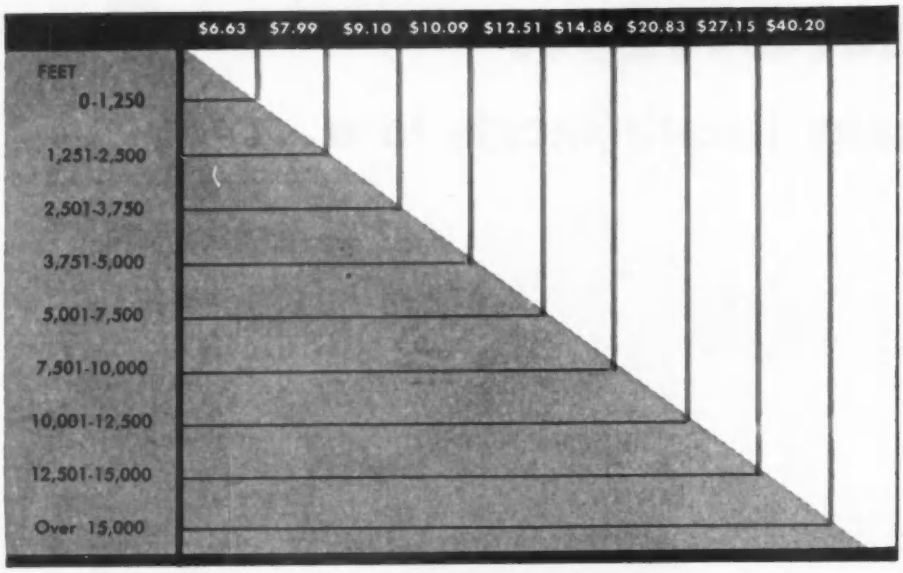
**WELL EQUIPMENT MFG. CORP.**
HOUSTON, TEXAS

Division of CHIKSAN COMPANY *a subsidiary of*
FOOD MACHINERY AND CHEMICAL CORPORATION

WECO®

## U. S. WELL COSTS INCREASE SHARPLY WITH DEPTH

(COST PER FOOT FOR DRILLING AND EQUIPPING WELLS)




# U. S. Drilling Costs . . . Costs shoot up when bit hits 10,000-foot mark.

COST OF DRILLING and equipping U. S. wells rises sharply with increased depth. Each additional foot drilled costs more and more. They rise at very sharp rates after the bit has reached 10,000 feet.

It costs 3½ times more to cut hole between 10,000 and 12,500 feet than when drilling between 5000 and 7500 feet. Costs rise to 4¾ times the 5000-7500 foot rate when the bit is between 12,500 and 15,000 feet. Costs jump to nearly nine times the 5000-7500 foot rate when the bit goes beyond 15,000 feet.

**Special Study.** These are some of the interesting figures revealed by a special study of drilling costs made by the American Petroleum Institute, Independent Petroleum Association of America, and Mid-Continent Oil & Gas Association. The report, based on a survey which covered costs on 30 percent of the wells drilled in the U. S. during 1953, is the first exhaustive study of average drilling costs.

The survey does not reflect today's costs. All costs reported in the study are based on actual 1953 experience. Costs have risen considerably since that time. Both labor and material costs are higher today than in 1953.

**Deep Wells Cost More.** The survey showed that wells drilled to 5001-7500 feet cost an average of $12.51 per foot during 1953. However, each foot drilled between 7500 and 10,000 feet cost $20.54. This increases to $41.80 for each foot drilled between 10,000 and 12,500 feet. Every foot between 12,500 and 15,000 feet costs $57.68, and drilling below 15,000 feet costs $105.91.

The survey also showed that the average U. S. well in the 5001-7500 foot range costs $76,400. While a well in the 10,001-12,500 foot range costs $230,800, or three times more. A 12,501-15,000 foot well costs five times as much, or $363,300.

Costs for drilling from the grass roots downward averages $12.51 per foot for a 5001-7500 foot well. However, a well in the 10,001-12,500 foot range costs an average of $20.83 a foot. Costs per foot rise to $27.15 for 12,501-15,000 foot wells, and then jump to $40.20 for wells over 15,000 feet.

Offshore wells cost much more. Average cost of a 5001-7500 foot well off the Louisiana coast is $230,200. This figure increased to $380,400 for wells completed between 10,001-12,500 feet.

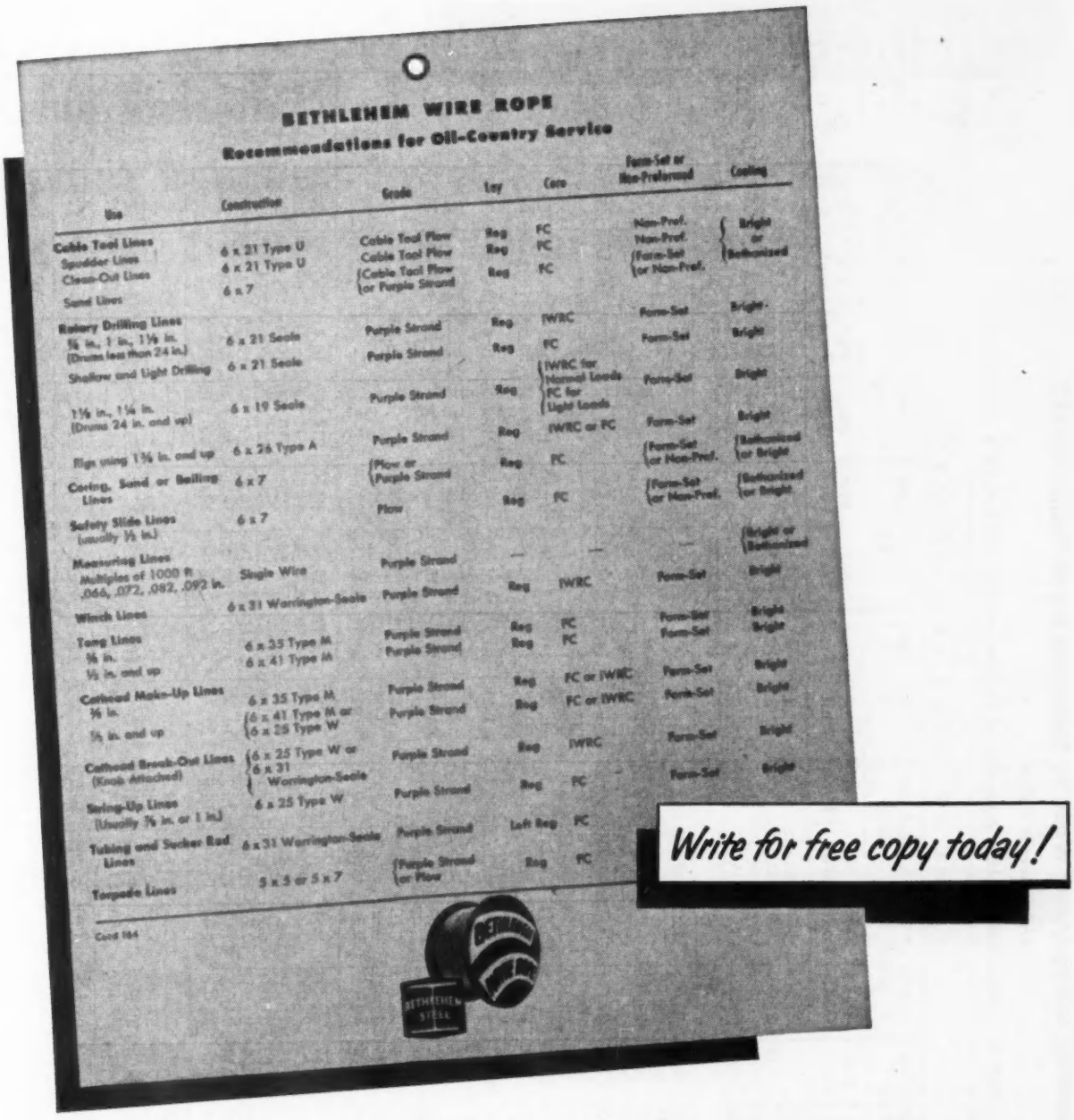
A table on the following page shows average costs per well and per foot by states and by depth ranges. In some areas it will be noted that costs indicate drilling becomes cheaper at deeper depths. This statistical condition may be the result of getting reports on the drilling costs of a larger number of wells in particular depth classifications. Small samples might not reflect true conditions.

### U. S. Average Drilling Cost Per Well and Per Foot in 1953

Source: Survey by American Petroleum Institute, Independent Petroleum Association of America, and Mid-Continent Oil & Gas Association

| Depth Range | Average Depth Per Well | Average Cost Per Well | Average Cost Per Foot | Cost of Incremental Increase in Depth | | |
|---|---|---|---|---|---|---|
| | | | | Added* Depth | Added Cost | Cost per Added Foot |
| 0- 1,250 Ft. | 849 | $ 5,600 | 6.63 | ..... | ..... | ..... |
| 1,251- 2,500 Ft. | 1,793 | 14,300 | 7.99 | 944 | 8,700 | 9.22 |
| 2,501- 3,750 Ft. | 3,121 | 28,400 | 9.10 | 1,328 | 14,100 | 10.62 |
| 3,751- 5,000 Ft. | 4,292 | 43,300 | 10.09 | 1,171 | 14,900 | 12.72 |
| 5,001- 7,500 Ft. | 6,104 | 76,400 | 12.51 | 1,812 | 33,100 | 18.27 |
| 7,501-10,000 Ft. | 8,631 | 128,300 | 14.86 | 2,527 | 51,900 | 20.54 |
| 10,001-12,500 Ft. | 11,083 | 230,800 | 20.83 | 2,452 | 102,500 | 41.80 |
| 12,501-15,000 Ft. | 13,380 | 363,300 | 27.15 | 2,297 | 132,500 | 57.68 |
| Over 15,000 Ft. | 16,038 | 644,800 | 40.20 | 2,658 | 281,500 | 105.91 |
| Average... | 4,035 | $50,200 | 12.43 | ..... | ..... | ..... |

* Increase in average depth.




# Handy chart makes rope selection easy

## Gives exact specifications for oil-country uses

Here's a unique wall card that simplifies the selection of wire rope for oil-country uses . . . and takes the headaches out of "specifications." It tells you the types to get for rotary lines, both large and small; for cable-tool and spudder lines; coring, sand, and bailing lines; cathead make-up and break-out lines; tubing and sucker rod lines, and numerous others.

But that's not all. It tells you more—the grade, lay, core, and coating to specify; also whether the rope should be preformed or not.

All these facts can be had at a glance. You don't have to backtrack, hunt around, or follow arrows. Everything is right there in front of you.

The chart is printed on heavy, serviceable cardboard with a metal eyelet for convenient hanging. If you would like a copy, write to *Bethlehem Steel Company, Publications Dept., Bethlehem, Pa.* We'll see that you get your chart promptly—without cost or obligation, of course.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

**BETHLEHEM STEEL**

## Estimated Cost of Drilling and Equipping Wells, by States and Depth Ranges—1953

(All Figures in Dollars)

Source: Survey by American Petroleum Institute, Independent Petroleum Association of America, and Mid-Continent Oil & Gas Association.

| STATE | Average Cost Per Well Drilled | Avge. Cost Per Foot Drilled | COST BY DEPTH CLASSIFICATION | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 500-1,250 Feet | | 1,250-2,500 Feet | | 2,500-3,750 Feet | | 3,750-5,000 Feet | | 5,000-7,500 Feet | | 7,500-10,000 Feet | | 10,000-12,500 Feet | | 12,500-15,000 Feet | | 15,000 Feet or Over | |
| | | | Per Well | Per Foot | Per Well | Per Foot | Per Well | Per Foot | Per Well | Per Foot | Per Well | Per Foot | Per Well | Per Foot | Per Well | Per Foot | Per Well | Per Foot | Per Well | Per Foot |
| Alabama | **36,909** | **7.03** | 5,254 | 5.92 | 15,293 | 8.07 | 31,104 | 9.89 | 45,842 | 10.56 | 30,206 | 4.84 | 197,464 | 23.16 | | | | | | |
| Arkansas | **39,357** | **10.68** | 5,114 | 5.92 | 14,963 | 8.05 | 27,705 | 8.91 | 45,248 | 10.49 | 77,528 | 12.59 | 133,562 | 15.86 | 235,810 | 21.03 | | | | |
| California | **85,655** | **19.45** | 12,527 | 16.20 | 30,279 | 17.02 | 46,415 | 15.22 | 68,682 | 16.37 | 111,107 | 18.70 | 183,238 | 21.76 | 270,476 | 24.39 | 387,321 | 29.23 | 1,045,333 | 65.33 |
| Colorado | **50,644** | **9.71** | 4,389 | 5.83 | 19,532 | 10.81 | 35,771 | 13.18 | 35,867 | 8.46 | 50,276 | 8.81 | 147,405 | 18.02 | 296,333 | 28.68 | | | | |
| Florida | **111,040** | **17.08** | 5,375 | 5.92 | 15,575 | 8.07 | 31,450 | 9.89 | 73,135 | 17.18 | 67,443 | 10.90 | 160,388 | 19.02 | 463,000 | 38.58 | 350,088 | 26.35 | | |
| Illinois | **18,240** | **7.28** | 4,766 | 5.17 | 15,537 | 9.24 | 25,048 | 7.42 | 48,968 | 11.17 | | | | | | | | | | |
| Indiana | **13,966** | **8.50** | 9,099 | 9.81 | 15,834 | 8.16 | 24,387 | 7.89 | | | | | | | | | | | | |
| Kansas | **30,476** | **8.99** | 5,377 | 7.20 | 16,630 | 8.25 | 28,463 | 9.16 | 35,917 | 8.38 | 91,114 | 15.23 | | | | | | | | |
| Kentucky | **13,561** | **6.70** | 4,555 | 4.66 | 14,533 | 7.24 | 22,973 | 7.04 | 32,006 | 7.48 | | | | | | | | | | |
| Louisiana (incl. offshore) | **120,943** | **17.88** | 7,828 | 8.62 | 20,352 | 11.17 | 31,257 | 10.09 | 44,239 | 10.23 | 86,746 | 14.01 | 134,824 | 15.27 | 230,066 | 20.57 | 365,404 | 26.98 | 494,599 | 30.80 |
| Michigan | **22,101** | **8.59** | 4,825 | 6.04 | 12,474 | 7.15 | 23,150 | 7.79 | 40,950 | 9.62 | 64,925 | 11.46 | | | | | | | | |
| Mississippi | **84,953** | **12.26** | 5,461 | 5.92 | 31,513 | 16.00 | 77,628 | 25.44 | 56,231 | 12.71 | 70,300 | 11.06 | 114,218 | 12.91 | 164,151 | 14.70 | 417,333 | 29.81 | | |
| Montana | **74,642** | **16.26** | 12,000 | 12.00 | 19,082 | 10.58 | 22,851 | 7.52 | 43,159 | 10.03 | 102,003 | 17.08 | 194,616 | 21.97 | 278,598 | 25.89 | 763,000 | 63.58 | | |
| Nebraska | **42,448** | **8.20** | 5,559 | 5.92 | 15,991 | 8.07 | 30,272 | 9.46 | 32,713 | 7.21 | 53,673 | 8.45 | | | | | | | | |
| New Mexico | **100,471** | **17.77** | 6,819 | 7.99 | 21,700 | 11.07 | 44,229 | 13.90 | 63,572 | 14.56 | 101,352 | 16.94 | 163,063 | 18.15 | 219,805 | 19.67 | 340,581 | 26.21 | 696,368 | 42.62 |
| New York | **6,072** | **4.20** | 3,658 | 4.13 | 7,340 | 5.43 | | | | | | | 119,000 | 13.22 | | | | | | |
| North Dakota | **100,528** | **13.83** | 5,319 | 5.92 | 15,448 | 8.07 | 34,192 | 10.83 | 43,108 | 9.67 | 84,788 | 13.79 | 115,117 | 13.47 | 322,370 | 28.17 | 405,000 | 31.15 | | |
| Ohio | **12,706** | **6.03** | 2,300 | 2.83 | 14,859 | 8.25 | 16,438 | 5.37 | 44,391 | 10.18 | 79,780 | 13.05 | | | | | | | | |
| Oklahoma | **36,852** | **10.71** | 3,012 | 3.91 | 13,953 | 7.62 | 27,771 | 9.01 | 46,103 | 10.62 | 76,502 | 12.42 | 119,585 | 13.76 | 200,717 | 18.92 | 577,045 | 44.00 | 646,000 | 40.38 |
| Pennsylvania | **13,739** | **6.95** | 3,058 | 4.40 | 4,732 | 3.17 | 24,437 | 9.35 | 45,491 | 11.04 | 74,042 | 13.35 | 110,814 | | | | | | | |
| South Dakota | **79,819** | **15.50** | 5,213 | 5.92 | 15,204 | 8.07 | 30,999 | 9.89 | 47,391 | 10.81 | 81,802 | 13.05 | 190,185 | 22.68 | | | | | | |
| Texas | **55,274** | **11.95** | 5,609 | 6.82 | 13,912 | 7.77 | 29,254 | 9.46 | 39,217 | 9.13 | 70,807 | 11.47 | 116,030 | 13.56 | 217,959 | 19.77 | 353,437 | 26.42 | 775,285 | 48.51 |
| Dist. 1 & 4 Southwest | **55,399** | **11.31** | 7,281 | 8.56 | 14,250 | 7.62 | 23,037 | 7.35 | 38,292 | 8.78 | 66,661 | 10.49 | 122,494 | 14.31 | 231,191 | 21.10 | 365,179 | 26.93 | 938,500 | 56.88 |
| Dist. 2 & 3 Gulf Coast | **79,657** | **12.27** | 5,246 | 6.17 | 18,756 | 10.10 | 41,446 | 13.41 | 30,778 | 7.10 | 65,068 | 10.49 | 104,142 | 12.04 | 210,806 | 19.00 | 383,789 | 28.60 | 710,452 | 44.51 |
| Dist. 5 & 6 East | **59,069** | **11.34** | 3,210 | 3.70 | 13,727 | 7.91 | 21,061 | 6.44 | 37,664 | 8.76 | 70,282 | 11.35 | 121,615 | 14.48 | 242,000 | 23.05 | 514,667 | 38.60 | | |
| Dist. 7B & 9 North | **33,598** | **9.89** | 4,371 | 5.39 | 12,796 | 7.32 | 24,254 | 7.97 | 38,363 | 9.02 | 68,311 | 11.25 | 164,793 | 19.75 | 207,224 | 19.27 | 310,483 | 23.95 | | |
| Dist. 7C & 8 West | **78,696** | **14.47** | 16,335 | 20.07 | 14,762 | 8.11 | 36,700 | 11.93 | 44,933 | 10.38 | 79,322 | 12.97 | 126,737 | 15.02 | 220,673 | 19.95 | 354,609 | 26.30 | 787,800 | 49.86 |
| Dist. 10 Panhandle | **39,432** | **11.88** | 5,492 | 5.92 | 24,869 | 12.00 | 33,074 | 10.44 | 61,944 | 14.93 | 110,572 | 17.15 | 162,048 | 18.66 | 350,512 | 31.06 | | | | |
| Utah | **163,733** | **28.94** | 7,052 | 5.92 | 19,384 | 8.07 | 93,559 | 28.13 | 87,279 | 18.23 | 155,571 | 26.82 | 283,143 | 33.59 | 480,869 | 43.98 | | | | |
| West Virginia | **23,663** | **8.73** | 5,602 | 6.65 | 14,175 | 7.74 | 24,697 | 7.97 | 40,837 | 9.57 | 75,757 | 12.70 | 119,979 | 14.44 | | | | | | |
| Wyoming | **80,431** | **17.01** | 18,392 | 22.26 | 30,641 | 18.08 | 38,467 | 12.72 | 61,420 | 14.51 | 101,073 | 16.92 | 147,382 | 17.49 | 390,561 | 35.96 | 345,333 | 27.26 | | |
| Miscellaneous | **14,240** | **10.19** | 4,752 | 5.92 | | | 28,467 | 9.89 | | | 70,190 | 13.05 | | | | | 353,115 | 27.42 | | |
| Total United States | **50,158** | **12.43** | 5,628 | 6.63 | 14,323 | 7.99 | 28,406 | 9.10 | 43,292 | 10.09 | 76,362 | 12.51 | 128,273 | 14.86 | 230,808 | 20.83 | 363,309 | 27.15 | 644,783 | 40.20 |
| Offshore (incl. in La.) | **298,768** | **31.29** | | | | | | | | | 230,200 | 37.13 | 192,409 | 21.22 | 380,350 | 34.58 | 765,500 | 60.04 | | |

FOR MORE INFORMATION AT THE BOTTOM OF YOUR WELL

# Double Shut-In Pressure Readings Provide More Information — In Less Time — Than Other Methods

"WHAT IS THE main advantage of double shut-in pressure readings?" That's a question often asked by those who have not yet tried this newest method of drill stem testing.

Actually there are *four* main advantages of the double shut-in pressure method:

1. Maximum formation pressure build-up in shortest time.
2. Comparison of reservoir build-up pressures before and after test.
3. Two separate chances to obtain reservoir pressure.
4. The measuring of the true equilibrium pressure prior to producing the formation provides a virgin pressure measurement and more accurate data.

Perfected by Johnston Testers, this new technique requires only a simple rearrangement of the test tool assembly. By placing a disc valve above the main or hydraulic valve, a specified volume of air is trapped between these two valves. This volume of air is called the "air chamber."

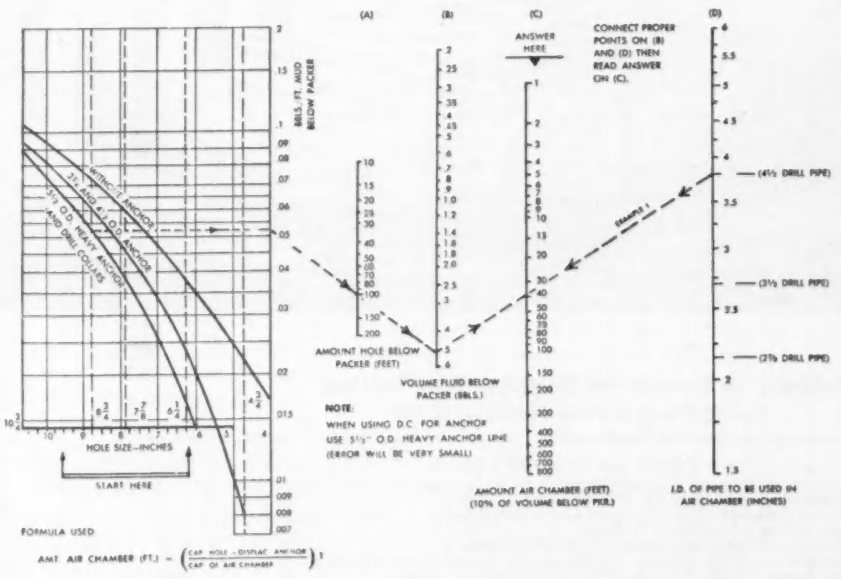
As the purpose of the air chamber is to relieve the mud pressure trapped below the packer, the secret of success of double shut-in testing is accurate use of this air chamber. Best results have been obtained when volume of the air chamber is about 10% of the volume of mud below the packer.

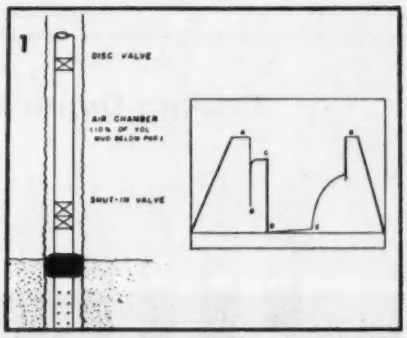
In the past, it has been common to calculate the air chamber to the nearest 30-foot pipe length. This lack of accuracy has often caused a failure to record the *maximum* initial shut-in pressure.

To overcome this problem, and to do away with complicated mathematics, Johnston has developed an "air chamber alignment chart." By simply drawing straight lines between known figures, the amount of air chamber needed can be calculated quickly and accurately.

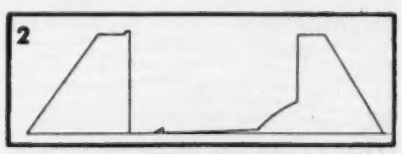
The chart below shows how simple it actually is to use this method.

Complete information on double shut-in testing is available from Johnston Testers, Houston, Texas. Write today for complete descriptive folder.

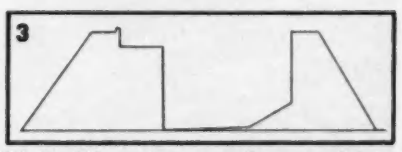

(A)
(B)
(C)
(D)
ANSWER HERE
CONNECT PROPER POINTS ON (B) AND (D) THEN READ ANSWER ON (C).
BBLS. FT. MUD BELOW PACKER
WITH I.D. ANCHOR
2¼ AND 4 I.D. ANCHOR
3½ O.D. HEAVY ANCHOR AND DRILL COLLARS
HOLE SIZE—INCHES
START HERE
AMOUNT HOLE BELOW PACKER (FEET)
VOLUME FLUID BELOW PACKER (BBLS.)
NOTE:
WHEN USING D.C. FOR ANCHOR USE 5½" O.D. HEAVY ANCHOR LINE (ERROR WILL BE VERY SMALL)
Example
(4½ DRILL PIPE)
(3½ DRILL PIPE)
(2⅞ DRILL PIPE)
AMOUNT AIR CHAMBER (FEET) (10% OF VOLUME BELOW PKR.)
I.D. OF PIPE TO BE USED IN AIR CHAMBER (INCHES)
FORMULA USED
AMT. AIR CHAMBER (FT.) = (CAP. HOLE − DISPLAC. ANCHOR / CAP. OF AIR CHAMBER)



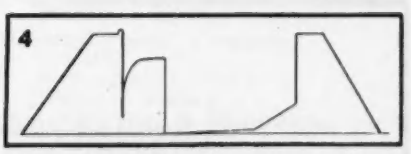

Testing tool assembly for double shut-in pressure readings which permits a limited fluid withdrawal. By placing the disc valve above the main or hydraulic valve so that a specified volume of air is trapped between these two valves.




Well not capable of producing fluid fast enough to fill up air chamber and cause pressure build-up.




Mud did not expand enough to get pressure draw-down below the formation pressure.




Mud expanded and pressure draw-down was below the formation pressure. Well was able to flow enough fluid to fill up air chamber and build-up shut-in pressure.


JOHNSTON TESTERS

first in drill stem testing

DS551

HOUSTON, TEXAS

LOS ANGELES, CALIF. • CALGARY, CAN.

FORMATION AND CASING TESTING — JOHNSTON

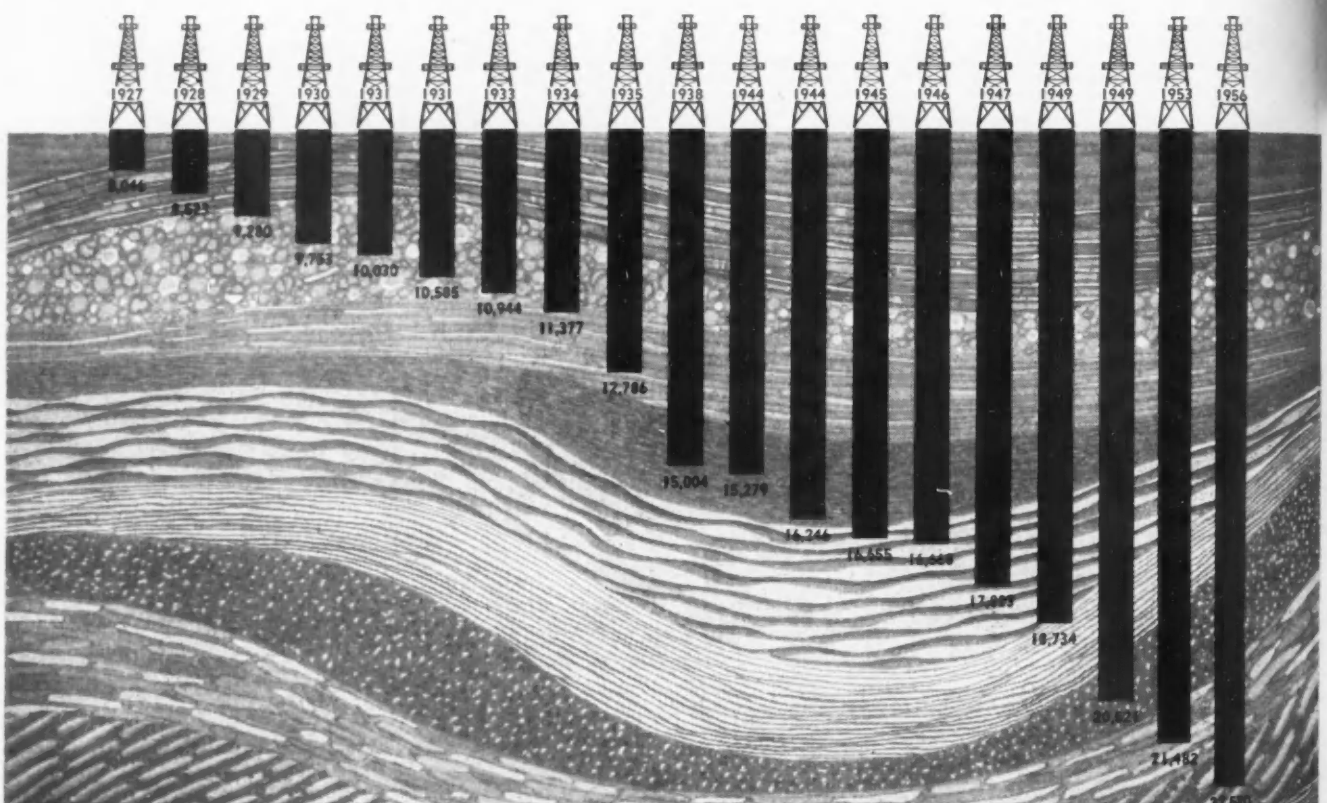
# Drilling Depth Record . . . New mark is 22,570 feet, more than four miles below the surface of the earth.

THE U. S. DRILLING depth record increased over 1000 feet during 1955. The new record is 22,570 feet, in excess of four miles below the surface.

This is 1088 feet deeper than the displaced record, and 2049 feet deeper than the 20,521-foot well that held the record from 1949 until 1953.

The new depth record holder is deep in the South Louisiana marshes. This marks the first time the Gulf Coast had held the depth record dur-

## Drilling Depth Record Increased Over 1000 Feet During 1955

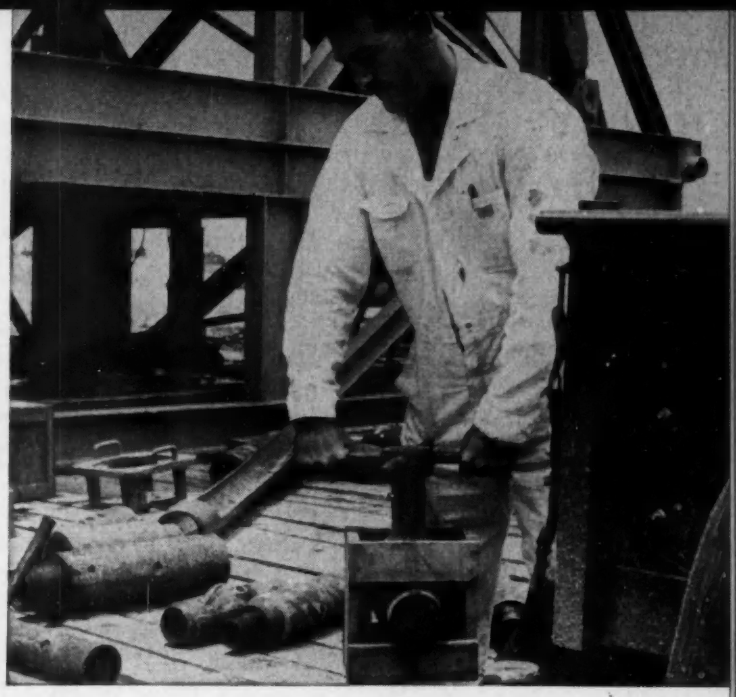



### Holders of Record as Deepest Test Drilled

(Includes both Dry and Producing Wells)

| Year | WELL and LOCATION | Feet |
|---|---|---|
| 1927 | Chanslor-Canfield-Midway Oil Company's Olinda 96, Olinda, California | 8,046 |
| 1928 | Texon Oil and Land Company's University 1-B, Big Lake, West Texas | 8,523 |
| 1929 | Shell Oil Company's Nesa 1, Long Beach, California | 9,280 |
| 1930 | Standard Oil Company of California's Mascot 1, Midway, California | 9,753 |
| 1931 | Chanslor-Canfield-Midway Oil Co.'s Hobson A-2, Rincon field, Ventura County, California | 10,030 |
| 1931 | Penn-Mex Fuel Company's Jardin 35, State of Vera Cruz, Mexico | 10,585 |
| 1933 | North Kettleman O. & G. Co.'s (later Union Oil's Lillis-Welch 1) Kettleman Hills, California | 10,944 |
| 1934 | General Petroleum Corporation's Berry 1, Belridge, Kern County, California | 11,377 |
| 1935 | Gulf Oil Corporation's McElroy 103, Gulf-McElroy, Upton County, West Texas | 12,786 |
| 1938 | Continental Oil Company's KCL A-2, Wasco, Kern County, California | 15,004 |
| 1944 | Phillips Petroleum Company's Ada Price 1, Wildcat, Pecos County, West Texas | 15,279 |
| 1944 | Standard Oil Company of California's KCL 20-13, South Coles Levee, Kern County, California | 16,246 |
| 1945 | Phillips Petroleum Company's Schoepe 3, Wildcat, Brazos County, Gulf Coast, Texas | 16,655 |
| 1946 | Pacific Western Oil Corp.'s National Royalties 1, Miramonte area, Kern County, California | 16,668 |
| 1947 | Superior Oil Company of California's Weller 51-11, Wildcat, Caddo County, Oklahoma | 17,823 |
| 1949 | Superior Oil Company of California's Limoneria 1, Wildcat, Ventura County, California | 18,734 |
| 1949 | Superior Oil Company of California's Unit 1, Wildcat, Sublette County, Wyoming | 20,521 |
| 1953 | Ohio Oil Co.'s Kern County Lands "A" 72-4, Paloma field, Kern Co., California | 21,482 |
| 1955 | Richardson & Bass, Freeport Sulphur & J. W. Mecom's Humble-L.L.&E. 1-L, Plaquemines, S. Louisiana | 22,570 |

**Getting instructions** from the tool pusher on the drilling platform . . .



**Without delay** the needed part was delivered to the rig by the distributor's truck.

country, and up the plank road to the rig.

**The rig and almost all its equipment—including the 5-inch OD Grade E Range 2 drill pipe from Pittsburgh Steel Company—was supplied through the independent. Ray followed through as friend and virtual working partner to see the venture launched successfully.**

Once the rig was in operation, this extra service did not stop. Ray no longer had to sleep at the rig, but he kept in touch daily. Like all independents, the distributor Ray works for keeps 24-hour service available 7 days a week for even the smallest item of equipment

**This is one story of service. It is typical of dozens being written all the time by representatives from the 141 stores of the independent distributors (at right) who handle Pittsburgh Seamless Oil Country Goods.**

Here's why drillers get a bonus from Mr. Independent Distributor: The independent concentrates his services where he can do a thorough job, rather than spreading them out thinly over big areas. He's a local man, a personal friend of the oilmen he serves. He has a working knowledge of their problems. He can anticipate their requirements.

Because his organization is small and not run by remote control, he gets answers to big problems fast and rushes deliveries with the least paper work. Yet his business is large enough to command a broad selection of the best oil field equipment available.

His overhead is low. So the extra service he can offer comes at no extra cost. He knows how to meet and beat competition, both price-wise and service-wise. His livelihood depends on it. And the return he makes stays right in the locality where he operates.

Pittsburgh Steel Company has no financial interest in any of these distributors. Yet it backs them with more than a half century of experience and know-how in production of seamless oil country goods. It gives them the kind of quality and technical assistance they depend on for reliable service to their customers.

**Next time you need a string of drill pipe, casing or oil well tubing, get the pipe of your choice through the distributor of your choice! Specify Pittsburgh Seamless!**

## Distributor Home Offices

**Bradford Supply Company**
130 Main Street
Bradford, Pennsylvania

**Buckeye Supply Company**
18 Harrison Street
Zanesville, Ohio

**C. W. Cotton Supply Company**
Utica National Bank Building
Tulsa 5, Oklahoma

**Franklin Supply Company**
624 South Michigan Avenue
Chicago 5, Illinois

**Houston Oil Field Material Co.**
1524 Maury Street
Houston, Texas

**Industrial Supply Company**
500 Eighth Street
Wichita Falls, Texas

**Iverson Supply Company**
400 West Fifth Street
Tulsa, Oklahoma

**Lucey Export Corporation**
233 Broadway
New York 7, New York

**Lucey Products Corporation**
624 South Cheyenne
Tulsa 19, Oklahoma

**McJunkin Corporation**
P. O. Box 513
Charleston 22, West Virginia

**Midland Supply Company**
Box 3105
Washington St. Station
Wichita 7, Kansas

**Mountain Iron & Supply Co.**
100 Rule Building
Wichita 2, Kansas

**Murray Brooks, Incorporated**
P. O. Box 855
Lake Charles, Louisiana

**Norvell Wilder Supply Company**
P. O. Box 4145
Beaumont, Texas

**Producers Supply & Tool Co.**
706 Commercial Standard Bldg.
Fort Worth 2, Texas

**Rodman Supply Company**
P. O. Box 2752
Odessa, Texas

**Southwest Supply Company**
1720 Oliver Building
Pittsburgh, Pennsylvania

**Superior Iron Works & Supply Co.**
P. O. Box 1800
Shreveport, Louisiana

**Western Supply Company**
424 North Boulder Avenue
Tulsa 1, Oklahoma

# Pittsburgh Steel Company

**Grant Building • Pittsburgh 30, Pa.**

DISTRICT SALES OFFICES: Atlanta • Chicago • Cleveland • Columbus • Dallas Dayton • Detroit • Houston • Los Angeles • New York • Philadelphia • Pittsburgh San Francisco • Tulsa • Warren, Ohio. PLANTS: Monessen, Pa. • Allenport, Pa. Akron • Los Angeles • Warren, Ohio • Worcester, Mass.

ing the past 10 years, although the region had a greater average drilling depth per well than any other area.

The new record holding well is Richardson & Bass, John W. Mecom (Louisiana account) and Freeport Sulphur Company's 1-L Humble-LL&E-State Lease 2414, in Plaquemines Parish. It took 283 days to drill. In early February, 1956, the well had been cased and was being prepared to test zones below 20,000 feet.

The displaced record holder was Ohio Oil Company's Kern County Lands "A" 72-4, in the Paloma field, Kern County, California. This well reached a depth of 21,482 feet during 1953, was finally abandoned in early 1955 after spending a year fishing and testing.

In addition to South Louisiana and California, two other states have depth records below 20,000 feet. These are Wyoming and Mississippi. These wells were drilled several years ago. The Wyoming well drilled to 20,521 feet in 1949, and held the record until 1953. This was the first well ever drilled to 20,000 feet in the history of the industry.

New district depth records were also established in the Texas Gulf Coast, West Texas, Northwest New Mexico, Oregon and West Virginia during 1955.

The new depth record for Texas Gulf Coast is 19,056 feet. In West Texas it was increased to 18,673 feet. A Northwest New Mexico test was still active at 13,590 feet at the start of 1956.

**Drilling Depth Records in U. S., by States and Districts, and by 1,000-Foot Intervals**

| State or District | Feet | Year | WELL AND LOCATION | Formation |
|---|---|---|---|---|
| S. Louisiana | **22,570** | Active | Richardson & Bass et al's Humble—L.L. & E 1-L, Plaquemines Parish | Miocene |
| California | **21,482** | 1955 | The Ohio Oil Co.'s KCL "A" 72-4, Paloma Field, Kern County | L. Miocene |
| Wyoming | **20,521** | 1949 | Superior of Calif.'s Unit 1, Pacific Creek area, Sublette County | U. Cretaceous |
| Mississippi | **20,450** | 1952 | Geo. Vasen et al's Tung Oil Co. of America 1, 9-2s-11w Stone County | Smackover (?) |
| Texas Gulf | **19,056** | 1955 | Magnolia's West Ranch 417-A, West Ranch Field, Jackson County | Cockfield |
| West Texas | **18,673** | 1955 | Hunt & Gulf's Elsinore Royalty Co. 47, GC&SF Sur., Pecos County | Ellenburger |
| S. W. Texas | **17,966** | 1951 | Superior's Minnie S. Welder 27, Portilla field, San Patricio County | Jackson |
| Oklahoma | **17,823** | 1947 | Superior's Weller 51-11, 11-8n-12w, Caddo County | Pennsylvanian |
| N. Mex., S.E. | **16,705** | 1954 | Richardson and Bass' Harrison-Federal 1, 12-25s-30e, Eddy County | Devonian |
| East Texas | **16,347** | 1949 | Humble Oil & Refining Co.'s R. P. McWatters 1, Freestone County | Jurassic |
| Alabama | **15,729** | 1952 | Humble Oil & Refining Co.'s Williams 1, 10-3n-2e, Clarke County | Jurassic |
| Florida | **15,455** | 1947 | Gulf Refining Co.'s State of Florida 1, Big Pine Key area, Monroe County | L. Cretaceous |
| Colorado | **15,041** | 1951 | Mountain Fuel Supply's Unit 1, 14-12n-100w, Hiawatha field, Moffat Co. | ..... |
| N. Louisiana | **14,967** | 1947 | Cotton Valley Opr. Comm. et al's A. G. Oliphant-Banks 2, Webster Parish | Salt |
| N. Tex.-Pan. | **14,363** | 1953 | Humble Oil & Refining Co.'s Mark Williams 1, Grayson County | Pennsylvanian |
| N. Dakota | **14,066** | 1953 | Amerada's Lars Kvam, Tr. 1-2, 19-156n-95w, Williams County | Ordovician |
| Utah | **13,766** | 1949 | Pacific Western Oil & Equity Oil's 1, 33-21s-21e, Grand County | Pennsylvanian |
| N. Mex., N.W. | **13,590** | Active | Magnolia Pet. Co. Jicarilla 1-A, 18-23n-2w, Rio Arriba County | Granite (?) |
| W. Virginia | **13,331** | 1955 | Hope Natural Gas Co.'s Power Oil Co. 9634, Walker Dist., Wood County | ..... |
| Montana | **13,135** | 1954 | Sun Oil Co. et al's Beagle L. & L. Co. 1, 17-23n-59e, Richland County | Winnipeg |
| Idaho | **12,844** | 1951 | Phillips Pet. & Utah Southern's Unit 1, 10-14s-30e, Oneida County | ..... |
| Arkansas | **12,650** | 1952 | Shell's Browning-Burns Unit 1, Columbia County | Smackover |
| Oregon | **12,566** | Active | Sinclair's Federal-Mapleton 1, 12-16s-10w, Lane County | ..... |
| Pennsylvania | **12,343** | 1951 | The California Co.'s Bennett 1, Davidson Twp., Sullivan County | Ordovician |
| Nevada | **11,543** | 1952 | Continental Oil Co.'s Unit 1, 32-20n-60e, White Pine County | Mississippian |
| New York | **11,145** | 1953 | New York State Natural Gas' Kesselring 1, Van Etten Twp., Chemung Co. | Theresa |
| Michigan | **11,012** | 1948 | Ohio Oil-Pure Oil's Reinhardt 1, West Branch field, Ogemaw County | Cambro-Ord. |
| Washington | **11,002** | 1947 | Standard of Calif.'s Alderwood Comm. 1, Snohomish County | Eocene |
| N. Carolina | **10,054** | 1946 | Standard Oil Co. of New Jersey's Cape Hatteras 1, Dare County | Granite |
| Virginia | **9,936** | 1949 | The California Co.'s Kipps Anthracite Coal Co. 1, Montgomery County | Ordovocian |
| S. Dakota | **9,348** | 1951 | Shell Oil Co.'s J. T. Homme 1, 13-20n-12e, Perkins County | Granite |
| Nebraska | **8,872** | 1952 | Stanolind O&G Co.'s Lovercheck 3, 21-18n-55w, Banner County | Granite |
| Kentucky | **8,821** | 1956 | Shell Oil Co.'s Mildred Davis 1, 17-L-26, Crittenden County | Knox (?) |
| Kansas | **8,243** | 1947 | Stanolind's Feathers 1, 15-35s-33w, Seward County | Arbuckle |
| Maryland | **8,165** | 1941 | William Snee's Schartzer 1, Accident Dist., Garrett County | Helderburg |
| Ohio | **7,889** | 1933 | Benedum and Tree's Knowlton 1, Independence Twp., Washington County | Clinton |
| Illinois | **7,682** | 1952 | Superior Oil Co.'s H. C. Ford et al C-17, 27-4s-14w, White County | Shakopee |
| Arizona | **7,568** | .... | Arizona Oil and Gas Co.'s State 1, Cochise County | ..... |
| Georgia | **7,487** | 1944 | Stanolind's J. H. Pullen 1, Mitchell County | Granite |
| Indiana | **6,408** | 1946 | Continental's Cooper 1-D, Griffin field, Gibson County | Trenton |
| Tennessee | **5,750** | 1947 | The California Co.'s E. W. Beeler 1, 4-15s-29e, Giles County | Granite |
| Iowa | **5,305** | 1930 | Oil Development Co.'s Wilson 1, Page County | Cambrian |
| New Jersey | **5,022** | 1928 | W&K Oil Co.'s Well 1, Jackson Mills area, Ocean County | Granite |
| Missouri | **4,740** | 1941 | Strake Petroleum Co.'s T. P. Russell 1, Pemiscot County | Cambrian |

Hundreds of "Royal Scintillators" have been purchased by leading oil companies and independent geologists for use in investigating the radioactive "halos" surrounding oil fields. The purchasers of these units were so satisfied they demanded an even more sensitive instrument of the same type.

In response to this demand, a special Project team of engineers at Precision Radiation Instruments has developed the new Model 118-C with an enormous crystal measuring 7″ in diameter, and with a sensitivity twelve times that of the original model 118 "Royal Scintillator." This instrument has a counting rate of six million counts per minute in a one MR/HR field of radiation. It's the finest instrument of its type in the world.

Those companies who have benefited from the sensitivity, accuracy and dependability of the Model 118 will certainly want to add the Model 118-C to their present geophysical equipment. Those who have not yet benefited from this advanced technique will want to start with the most sensitive instrument of its kind in the world . . . the "Royal Scintillator" Model 118-C.

**The bigger the crystal,**

**the brighter**

**the future**

For those who want a fine "Scintillator" at a moderate cost, PRI has also designed a successor to the famous Model 118. The new model 118-B "Royal Scintillator" has a 3¼″ diameter crystal with twice the sensitivity and counting rate of the previous model. PRI's expanded production has made this improved instrument possible at no increase in price.

**URANIUM PROSPECTING**

The "Royal" is the finest instrument made for uranium prospecting, as well as investigating the radiation pattern around oil fields. Its use for this purpose should not be overlooked by oil geologists.

For further information contact your dealer . . . or write direct for free pamphlet "The Principles of Oil Field Detection with Scintillation Counters" and complete catalog of Geiger Counters and Scintillators.

# PRECISION RADIATION INSTRUMENTS, INC.

WORLD'S LARGEST MANUFACTURERS OF RADIATION INSTRUMENTS

PRECISION RADIATION INSTRUMENTS, INC., 4223 West Jefferson Boulevard, Los Angeles 16, California –WO

Please send Free Oil Survey Pamphlet and Catalog.

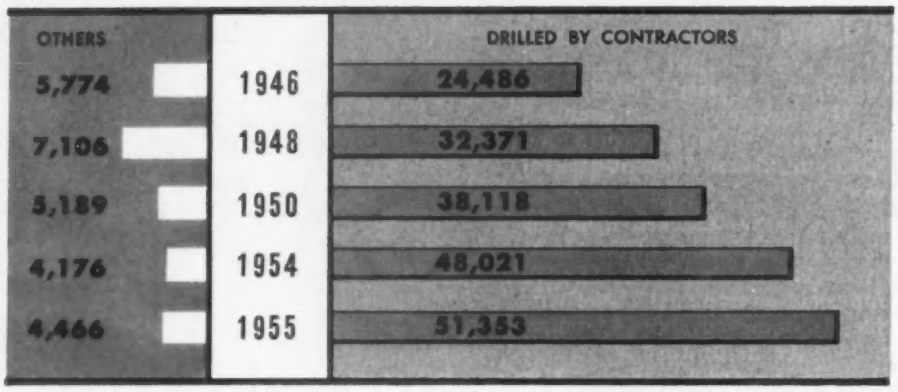
Name_____ Title_____

Company_____

Address_____

City_____ State_____

## CONTRACTORS DRILL INCREASING SHARE OF U. S. WELLS




**Wells and Footage Drilled in U. S. by Contractors, by Years**

| Year | U. S. Totals | | Indicated Work by Contractors | | |
|---|---|---|---|---|---|
| | New Wells | Footage | % of U.S | Wells | Footage |
| 1941 | 32,510 | 99,347,714 | 72 | 23,407 | 71,503,354 |
| 1942 | 21,990 | 67,903,053 | 70 | 15,393 | 47,532,137 |
| 1943 | 20,349 | 61,991,857 | 75 | 15,262 | 46,492,893 |
| 1944 | 25,786 | 84,378,457 | 78 | 20,113 | 65,815,196 |
| 1945 | 26,649 | 92,982,113 | 80 | 21,319 | 74,385,690 |
| 1946 | 30,230 | 101,124,813 | 81 | 24,486 | 81,911,060 |
| 1947 | 33,147 | 112,816,124 | 81 | 26,849 | 91,381,000 |
| 1948 | 39,477 | 136,709,153 | 82 | 32,371 | 112,101,506 |
| 1949 | 38,962 | 138,616,941 | 85 | 33,118 | 117,824,400 |
| 1950 | 43,307 | 159,761,732 | 88 | 38,118 | 140,590,324 |
| 1951 | 45,996 | 176,757,221 | 90 | 41,396 | 159,081,496 |
| 1952 | 46,507 | 188,160,597 | 91 | 42,321 | 171,226,143 |
| 1953 | 49,480 | 198,431,603 | 91 | 45,027 | 180,572,730 |
| 1954 | 52,197 | 211,296,158 | 92 | 48,021 | 194,392,465 |
| 1955 | 55,819 | 227,479,545 | 92 | 51,353 | 209,281,181 |

# Drilling by Contractors . . . 1955

### record: 51,353 wells and 209,281,181 feet.

CONTRACT DRILLERS set new records for number of wells drilled and total footage in 1955—the eleventh straight year that a new mark has been established.

The 1955 contract drilling record shows 51,353 wells drilled for a depth total of 209,281,181 feet. This means contractors accounted for 3332 more wells and 14,888,716 more feet of hole than in 1954, the previous record year.

During 1955, Contractors drilled 92 percent of all U. S. wells, the same as 1954. This was twice as many wells and nearly three times as much footage as in 1945 when they accounted for only 80 percent of the business.

Last year marked only the second time in 13 years that contractors did not make decided gains in percentage of wells drilled. They drilled 81 percent of the U. S. total in 1946 and 1947.

The history of the growth of contract drilling is truly one of the outstanding success stories of the industry. Every year since 1943 shows a new record increase of from 1000 to 5000 wells—and total depth shows a corresponding increase.

The war years of 1942 and 1943 were the only periods of decrease contract drillers have had in more than 15 years.

# Contractor Rig Ownership . . . Survey shows contractors

### own slightly more than 4000 rigs in U. S.

THE OIL INDUSTRY is able to drill in excess of 50,000 wells and more than 200 million feet of hole annually in the U. S. because of a large contract drilling business.

A survey by WORLD OIL was successful in determining the ownership of 3873 contractor rigs in the U. S. This indicates that contractors own slightly more than 4000 rigs. The figure is exclusive of rigs owned by producing companies not engaged in contract drilling work, and also is exclusive of service and workover rigs which sometimes do contract drilling work.

The contract drilling business is highly competitive. The survey showed that the 3873 rigs belonged to 889 different contracting firms and individuals, an average of only 4⅓ rigs per contractor. It was shown that 617 contractors engaged exclusively in rotary drilling owned 2387 rigs; that 171 contractors owned 677 rotaries and 443 cable tool rigs; and that 107 contractors engaged exclusively in cable tool drilling work owned 366 cable tool rigs.

The highly competitive nature of the rotary contract drilling business was demonstrated by the large number of small contractors. Three-fourths of the 782 contractors owning rotary rigs (including 171 who also owned cable tools) owned less than 5 rotaries each. The survey showed this breakdown on rotary rig ownership: only 11 contractors with more than 20 rigs each; 40 that owned from 10 to 18 rigs apiece; 153 contractors with 4 to 9 rigs each; 408 contractors that owned 2 to 4 rigs each, and 170 contractors owning only 1 rotary rig each.

Cable tool rigs also are mostly in the hands of small contractors. The survey showed only 13 contractors owned more than 10 cable tool rigs; 36 contractors owned 5 to 9 rigs each; 130 contractors owned 2 to 4 rigs apiece, and 99 contractors with 1.

# Artificial Lift . . . Texas with estimated 9781 to lead the upsurge in wells on artificial lift.

MORE U.S. wells are likely to be placed on artificial lift during 1956 than ever before. Expenditures to maintain existing artificially lifted wells also should increase to a new peak.

WORLD OIL estimates 28,731 wells will require some form of artificial lift equipment during 1956, either pumps or gas lift. This compares with 27,559 during 1955, and 25,439 in 1954. Equipment expenditures for maintaining wells previously equipped with artificial lift are estimated at $72,027,538, an all-time high.

Increased drilling forecast for 1956 should result in the completion of a record number of new producing oil wells. A large percentage of these newly completed wells will go on artificial lift immediately. In addition, many older flowing wells will require artificial lift during the year.

Maintenance expenses to keep equipped wells in operation will increase due to the growth in number of wells on artificial lift. At the end of 1955 there were 472,315 U.S. wells on artificial lift, an increase of 20,000 compared with the end of 1954. Higher equipment cost also will boost expenditures.

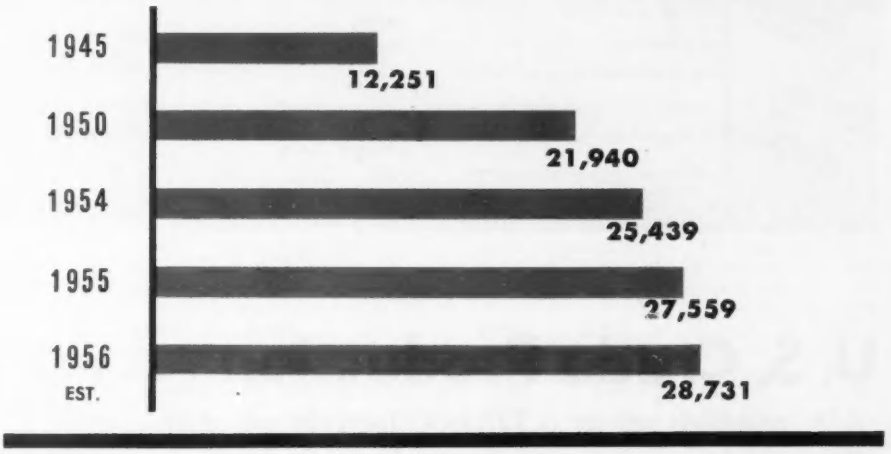
**Texas will lead.** Largest number of wells likely to require artificial lifting equipment during 1956 will be Texas. An estimated 9781 Texas wells will go on artificial lift in 1956. Texas also will lead in lifting equipment maintenance expenditures, with an estimated $22,521,110 during 1956.

Oklahoma with an estimated 6723 wells is expected to have the second largest number of wells to go on artificial lift this year. Equipment expenditures for maintaining Oklahoma wells previously equipped is estimated at $9,648,039.

Kansas follows with an estimated 2286 wells to go on artificial lift. Maintenance expenditures in Kansas are expected to total $4,720,755.

Illinois, California and Louisiana are expected to be other active states. Illinois will have an estimated 1994 wells go on artificial lift, while maintenance expenditures for equipment are estimated at $4,266,315. It is estimated that 1770 wells will be placed on some form of artificial lift in California, but deep depths will push maintenance expenditures in the state to $14,319,168. Louisiana is seen as having 1771 wells go on artificial lift. Maintenance expenditures are estimated at $1,738,205.

**RECORD NUMBER OF U. S. WELLS TO REQUIRE ARTIFICIAL LIFT EQUIPMENT IN 1956**



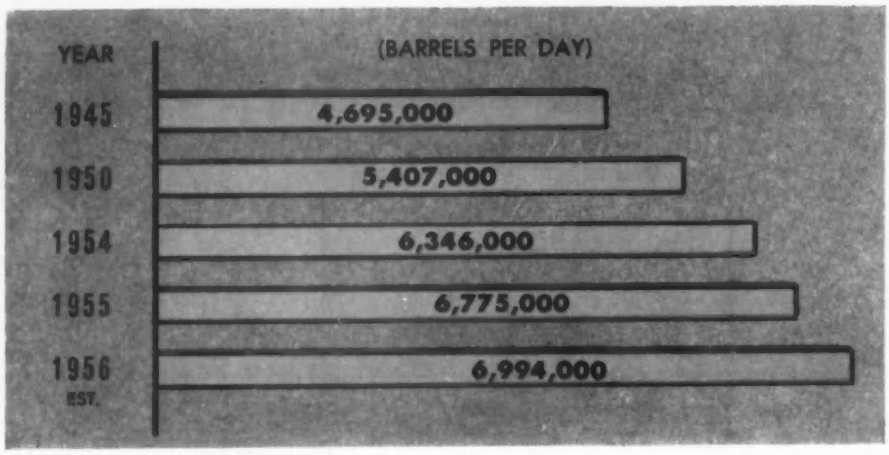

**Estimate of 1956 Artificial Lifting Equipment**

(Includes requirements for all types of pumping, hydraulic power, and gas lift units)

| STATE or DISTRICT | Est. Wells to go on Art. Lift in 1956 | Wells Put on Pump or Lift in 1955 | New Oil Wells Completed in 1955 | No. Flowing Oil Wells End of 1955 | Oil Wells on Artificial Lift End of 1955 | Net Wells Shut in or Abandoned in 1955 | Est. Maintenance Cost for All Art. Lift Wells in 1956 (Equipment Only) |
|---|---|---|---|---|---|---|---|
| Alabama | 1 | —5‡ | 1 | 11 | 102 | 1 | $ 10,712 |
| Arkansas | 286 | 300 | 440 | 410 | 4,057 | 168 | 541,800 |
| California | 1,770 | 1,721 | 1,710 | 1,759 | 32,571 | 453 | 14,319,168 |
| Colorado | 174 | 157 | 405 | 345 | 1,784 | 6 | 304,973 |
| Illinois | 1,994 | 2,082 | 2,099 | 27 | 36,758 | 479 | 4,266,315 |
| Indiana | 199 | 203 | 223 | 23 | 5,011 | 146 | 531,544 |
| Kansas | 2,286 | 2,171 | 2,261 | 121 | 35,452 | 1,242 | 4,720,755 |
| Kentucky | 759 | 711 | 723 | 12 | 17,008 | 296 | 1,964,731 |
| Louisiana | 1,771 | 1,504 | 2,422 | 5,855 | 10,817 | 275 | 1,738,205 |
| North Louisiana | 1,203 | 1,163 | 1,425 | 1,070 | 8,614 | 160 | 1,253,240 |
| South Louisiana | 568 | 341 | 997 | 4,785 | 2,203 | 115 | 484,965 |
| Michigan | 170 | 177 | 202 | 505 | 3,689 | —5* | 535,908 |
| Mississippi | 148 | —16‡ | 162 | 497 | 1,617 | —86* | 350,037 |
| Montana | 160 | —45‡ | 156 | 311 | 3,587 | 9 | 597,721 |
| Nebraska | 231 | 269 | 300 | 31 | 932 | —116* | 190,554 |
| New Mexico | 789 | 1,136 | 928 | 3,502 | 4,727 | 65 | 1,643,841 |
| New York | 169 | 221 | 221 | ..... | 22,300 | 421 | 1,320,656 |
| North Dakota | 95 | 77 | 168 | 444 | 92 | 73 | 16,402 |
| Ohio | 470 | 649 | 639 | 80 | 14,660 | 1,199 | 953,280 |
| Oklahoma | 6,723 | 4,484 | 4,809 | 3,180 | 71,430 | —2,395* | 9,648,039 |
| Pennsylvania | 206 | 244 | 244 | ..... | 78,500 | 1,744 | 4,082,562 |
| Texas | 9,781 | 11,204 | 11,841 | 47,669 | 108,811 | 3,105 | 22,521,110 |
| Dist. 1: South Central | 1,059 | 1,031 | 1,124 | 474 | 5,287 | 274 | 948,008 |
| Dist. 2: Middle Gulf | 277 | 357 | 296 | 3,265 | 1,977 | 173 | 397,620 |
| Dist. 3: Upper Gulf | 835 | 822 | 818 | 5,115 | 6,998 | 369 | 1,208,645 |
| Dist. 4: Lower Gulf-S.W. | 474 | 633 | 512 | 5,248 | 6,609 | 427 | 1,234,126 |
| Dist. 5 & 6: E. Cent. & N.E. | 597 | 579 | 395 | 12,406 | 14,386 | —44* | 3,420,740 |
| Dist. 7-B & 9: N. Cent. & N. | 2,740 | 3,674 | 3,874 | 4,180 | 36,922 | 941 | 7,926,444 |
| Dist. 7-C & 8: W. Cent. & W. | 3,109 | 3,407 | 4,105 | 16,833 | 27,419 | 930 | 5,823,573 |
| Dist. 10: Panhandle | 690 | 701 | 717 | 148 | 9,213 | 35 | 1,556,954 |
| Utah | 36 | 13 | 14 | 2 | 68 | 26 | 11,094 |
| West Virginia | 84 | 80 | 80 | ..... | 12,500 | 580 | 777,604 |
| Wyoming | 429 | 216 | 383 | 535 | 5,681 | —144* | 960,885 |
| Other States† | ..... | 6 | 6 | ..... | 161 | —2* | 19,642 |
| Total United States | 28,731 | 27,559 | 30,432 | 55,364 | 472,315 | 7,540 | 72,027,538 |

† Arizona, Florida, Missouri, Nevada, South Dakota, Tennessee, and Virginia.
* Net wells put back on production.
‡ Net Artificial Lift wells put back on flow status.

## U. S. OIL PRODUCTION CONTINUES TO GROW
### . . . Will reach nearly 7 million barrels daily in 1956




# U. S. Crude Production . . . 1955

**average set at 6,775,000 barrels per day.**

U. S. CRUDE production averaged 6,775,000 barrels daily in 1955—setting an all-time record.

Outlook for 1956: Another record year. Continued increase in consumer demand will again boost crude runs to stills. In spite of an expected 7 percent rise in imports, more domestic crude will be required. U. S. crude output is forecast at 6,994,000 barrels daily in 1956. That would be an increase of 219,000 barrels daily or 3.2 percent over 1955.

Total value of U. S. crude at the well will top $7 billion for the first time in 1956, if present prices hold. Domestic wells will yield about 2,560,000,000 barrels of crude. On the basis of the current $2.78 a barrel average price, the 1956 production would be worth $7,116,800,000 at the wells. That would be $267,069,000 more than the $6,849,731,000 worth of crude produced in 1955.

U. S. Crude production of 6,774,804 barrels daily in 1955 was 428,714 barrels a day (6.8 percent) more than the 1954 output of 6,346,090 barrels daily—a 2 percent drop from 1953.

**The big jump** in consumer demand during 1955 corrected the previous year's problems of excessive products and slackening demand which resulted in curtainment of both crude production and refinery runs.

Crude runs to stills increased 7.4 percent in 1955, compared to the 0.6 percent drop in 1954. Stocks of domestic crude were increased only 2,166,000 barrels in 1955 to meet the growing demand from refineries. In 1954, crude stocks were drawn down 16 million barrels.

All but one (California) of the five top producing states showed increases last year. They accounted for 5,471,337 barrels per day, or 80.7 percent of the total daily U. S. output. These states are:

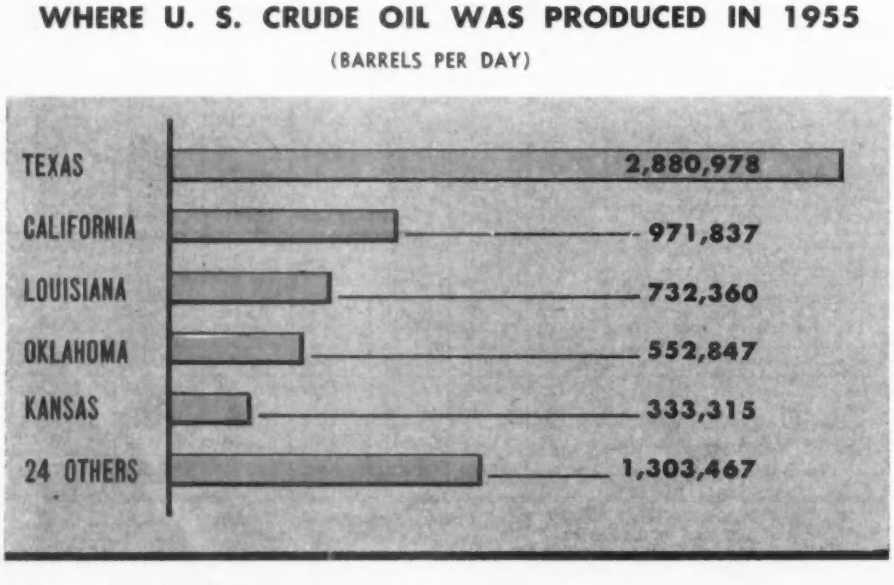
Texas, which produced 42.5 percent of the U. S. total (2,880,978 barrels per day); California, 14.3 percent (971,837 barrels daily); Louisiana, 10.8 percent (732,360 barrels a day); Oklahoma, 8.2 percent (552,847 barrels daily); Kansas, 4.9 percent (333,315 barrels per day).

Average increase in production of the five top states was 5.1 percent. These figures are completely reversed from 1954, when only Kansas showed an increase, and the top four states showed an average production drop of 4.7 percent. In 1955, only California showed a slight decrease (0.3 percent—or 2900 barrels a day) from the 1954 yield of 974,737 barrels daily.

**Texas, the largest** producing state,

## WHERE U. S. CRUDE OIL WAS PRODUCED IN 1955

(BARRELS PER DAY)




**U. S. Crude Oil Production**

Source: U. S. Bureau of Mines, except Nov. and Dec., 1955, from American Petroleum Institute.

(THOUSANDS OF BARRELS)

| Year | Total | Daily | Year | Total | Daily |
|---|---|---|---|---|---|
| ..... | ..... | .... | 1936.. | 1,099,687 | 3,013 |
| ..... | ..... | .... | 1937.. | 1,279,160 | 3,505 |
| 1918... | 355,928 | 975 | 1938.. | 1,214,355 | 3,327 |
| 1919... | 378,367 | 1,037 | 1939.. | 1,264,962 | 3,466 |
| 1920... | 442,929 | 1,213 | 1940.. | 1,353,314 | 3,707 |
| 1921... | 472,183 | 1,294 | 1941.. | 1,402,228 | 3,842 |
| 1922... | 557,531 | 1,528 | 1942.. | 1,386,645 | 3,799 |
| 1923... | 732,407 | 2,007 | 1943.. | 1,505,613 | 4,125 |
| 1924... | 713,940 | 1,956 | 1944.. | 1,677,904 | 4,584 |
| 1925... | 763,743 | 2,092 | 1945.. | 1,713,655 | 4,695 |
| 1926... | 770,874 | 2,112 | 1946.. | 1,733,939 | 4,750 |
| 1927... | 901,129 | 2,469 | 1947.. | 1,856,987 | 5,088 |
| 1928... | 901,474 | 2,469 | 1948.. | 2,020,185 | 5,520 |
| 1929... | 1,007,323 | 2,760 | 1949.. | 1,841,940 | 5,046 |
| 1930... | 898,011 | 2,460 | 1950.. | 1,973,574 | 5,407 |
| 1931... | 851,081 | 2,332 | 1951.. | 2,247,711 | 6,158 |
| 1932... | 785,159 | 2,151 | 1952.. | 2,289,836 | 6,256 |
| 1933... | 905,656 | 2,481 | 1953.. | 2,357,082 | 6,458 |
| 1934... | 908,065 | 2,488 | 1954.. | 2,316,323 | 6,346 |
| 1935... | 996,596 | 2,730 | 1955.. | 2,472,827 | 6,775 |
| | | | 1956 Est.. | 2,560,000 | 6,994 |

reported an increase of 7.1 percent—191,329 barrels daily more than in 1954. All ten Texas districts showed increases compared to five in 1954.

Louisiana had the largest production increase—8.6 percent or 58,133 barrels per day more than in 1954.

Oklahoma showed an 8.3 percent increase, 42,302 barrels per day more than the previous year—and Kansas production was up 2 percent (6419 barrels a day) over 1954.

Of the remaining 24 oil producing states, 13 showed production increases last year and 11 showed decreases. The most significant increases were North Dakota with 83.5 percent; Colorado, 24.4 percent; Nebraska, 28 percent; and Illinois, 21.7 percent.

**Other states** showing increases were Kentucky, 9.6 percent; Mississippi, 11.1 percent; Montana, 13.1 percent; Nevada, 100 percent; New Mexico, 8.7 percent; Ohio, 12.9 percent; Utah, 11.3 percent; Virginia, 63 percent and Wyoming, 7 percent.

States reporting decreases include Alabama, 13 percent; Arkansas, 2.9 percent; Florida, 10.7 percent; Indiana, 2.3 percent; Michigan, 5.8 percent; Missouri, 16.7 percent; New York, 5.3 percent; Pennsylvania, 9.2 percent; South Dakota, 11.8 percent; Tennessee, 4.4 percent, and West Virginia, 19.7 percent.

The nation's cumulative production to January 1, 1956 amounted to 52,602,867,000 barrels—nearly 2½ billion barrels more than in 1954.

## U. S. Crude Oil Production, by States and Districts, 1954, 1955, and Cumulative Since Beginning

(Sources: U. S. Bureau of Mines, except Nov. and Dec., 1955, from API; Tex. districts from Tex. R. R. Com., and La. district cumulatives from other sources.)

| STATE and DISTRICT | Annual Production (Thousands Bbls.) | | Daily Average Production (Actual Bbls.) | | | Year's Production As % of U.S. | | Cumulative Prod. to Jan. 1, 1956 (Thousands Bbls.) | |
|---|---|---|---|---|---|---|---|---|---|
| | 1954 | 1955 | 1954 | 1955 | % Diff. '54-'55 | 1954 | 1955 | Total | As of % U.S. |
| **Alabama** | 1,584 | 1,378 | 4,340 | 3,775 | — 13.0 | 0.06 | 0.05 | 9,618 | 0.01 |
| **Arkansas** | 29,206 | 28,349 | 80,016 | 77,668 | — 2.9 | 1.26 | 1.15 | 942,576 | 1.80 |
| **California** | 355,779 | 354,724 | 974,737 | 971,837 | — 0.3 | 15.36 | 14.34 | 10,409,197 | 19.78 |
| **Colorado** | 41,052 | 51,055 | 112,471 | 139,875 | + 24.4 | 1.78 | 2.07 | 333,723 | 0.64 |
| **Florida** | 548 | 489 | 1,501 | 1,340 | — 10.7 | 0.02 | 0.02 | 4,347 | 0.01 |
| **Illinois** | 66,998 | 81,562 | 183,556 | 223,456 | + 21.7 | 2.89 | 3.29 | 1,834,234 | 3.48 |
| **Indiana** | 11,204 | 10,953 | 30,696 | 30,008 | — 2.3 | 0.49 | 0.45 | 258,840 | 0.50 |
| **Kansas** | 119,317 | 121,661 | 326,896 | 333,315 | + 2.0 | 5.15 | 4.92 | 2,684,396 | 5.10 |
| **Kentucky** | 13,791 | 15,113 | 37,784 | 41,405 | + 9.6 | 0.59 | 0.61 | 316,208 | 0.60 |
| **Louisiana*** | 246,093 | 267,314 | 674,227 | 732,360 | + 8.6 | 10.63 | 10.81 | 3,807,265 | 7.24 |
| North Louisiana | 40,997 | 43,368 | 112,321 | 118,815 | + 5.8 | 1.76 | 1.75 | 1,002,829 | 1.90 |
| South Louisiana | 205,096 | 223,946 | 561,907 | 613,545 | + 9.2 | 8.86 | 9.06 | 2,472,220 | 4.70 |
| **Michigan** | 12,027 | 11,334 | 32,951 | 31,052 | — 5.8 | 0.52 | 0.46 | 385,071 | 0.73 |
| **Mississippi** | 33,591 | 37,317 | 92,030 | 102,237 | + 11.1 | 1.45 | 1.51 | 463,936 | 0.88 |
| **Missouri** | 78 | 65 | 214 | 178 | — 16.7 | 0.00 | 0.00 | 805 | 0.00 |
| **Montana** | 13,687 | 15,484 | 37,499 | 42,422 | + 13.1 | 0.59 | 0.63 | 227,906 | 0.44 |
| **Nebraska** | 7,423 | 9,503 | 20,337 | 26,035 | + 28.0 | 0.32 | 0.38 | 35,872 | 0.06 |
| **Nevada** | 33 | 66 | 90 | 181 | +100.0 | 0.00 | 0.00 | 99 | 0.00 |
| **New Mexico** | 75,200 | 81,778 | 206,027 | 224,047 | + 8.7 | 3.25 | 3.31 | 1,021,214 | 1.95 |
| Southeast New Mexico | 74,408 | 80,837 | 203,857 | 221,469 | + 8.6 | 3.21 | 3.26 | 1,006,761 | 1.91 |
| Northwest New Mexico | 792 | 941 | 2,170 | 2,578 | + 18.8 | 0.04 | 0.04 | 14,406 | 0.03 |
| **New York** | 3,257 | 3,085 | 8,923 | 8,452 | — 5.3 | 0.14 | 0.12 | 195,649 | 0.37 |
| **North Dakota** | 5,979 | 10,971 | 16,381 | 30,057 | + 83.5 | 0.26 | 0.45 | 23,707 | 0.04 |
| **Ohio** | 3,829 | 4,322 | 10,490 | 11,841 | + 12.9 | 0.16 | 0.17 | 639,250 | 1.22 |
| **Oklahoma** | 186,349 | 201,791 | 510,545 | 552,847 | + 8.3 | 8.05 | 8.16 | 7,229,478 | 13.74 |
| **Pennsylvania** | 9,107 | 8,270 | 24,951 | 22,657 | — 9.2 | 0.39 | 0.34 | 1,175,767 | 2.24 |
| **South Dakota** | 34 | 30 | 93 | 82 | — 11.8 | 0.00 | 0.00 | 64 | 0.00 |
| **Tennessee** | 17 | 16 | 46 | 44 | — 4.4 | 0.00 | 0.00 | 582 | 0.00 |
| **Texas*** | 981,722 | 1,051,567 | 2,689,649 | 2,880,978 | + 7.1 | 42.39 | 42.52 | 18,807,721 | 35.75 |
| Dist. 1: South Central | 15,527 | 18,823 | 42,540 | 51,569 | + 21.2 | 0.67 | 0.76 | 375,073 | 0.67 |
| Dist. 2: Middle Gulf | 52,155 | 55,436 | 142,890 | 151,878 | + 6.3 | 2.25 | 2.25 | 835,275 | 1.59 |
| Dist. 3: Upper Gulf | 160,003 | 163,799 | 438,364 | 448,760 | + 2.4 | 6.91 | 6.62 | 3,466,948 | 6.59 |
| Dist. 4: Lower Gulf-S.W. | 88,617 | 89,034 | 242,786 | 243,926 | + 0.5 | 3.82 | 3.60 | 1,386,363 | 2.64 |
| Dist. 5: East Central | 16,133 | 17,740 | 44,200 | 48,602 | + 10.0 | 0.70 | 0.72 | 599,676 | 1.14 |
| Dist. 6: Northeast | 123,812 | 126,132 | 339,211 | 345,564 | + 1.9 | 5.34 | 5.10 | 3,254,155 | 6.18 |
| Dist. 7-B: North Central | 46,561 | 52,384 | 127,564 | 143,516 | + 12.5 | 2.01 | 2.12 | 686,301 | 1.31 |
| Dist. 7-C: West Central | 65,656 | 66,296 | 179,879 | 181,631 | + 1.0 | 2.84 | 2.68 | 539,522 | 1.02 |
| Dist. 8: West | 311,196 | 343,776 | 852,592 | 941,843 | + 10.5 | 13.43 | 13.90 | 4,051,255 | 7.71 |
| Dist. 9: North | 68,420 | 73,594 | 187,452 | 201,625 | + 7.6 | 2.96 | 2.98 | 1,436,508 | 2.73 |
| Dist. 10: Panhandle | 30,300 | 32,328 | 83,014 | 88,569 | + 6.7 | 1.30 | 1.30 | 820,054 | 1.56 |
| **Utah** | 1,873 | 2,084 | 5,132 | 5,710 | + 11.3 | 0.08 | 0.09 | 10,682 | 0.02 |
| **Virginia** | 10 | 16 | 27 | 44 | + 63.0 | 0.00 | 0.00 | 247 | 0.00 |
| **West Virginia** | 2,902 | 2,332 | 7,951 | 6,389 | — 19.7 | 0.12 | 0.09 | 454,591 | 0.87 |
| **Wyoming** | 93,633 | 100,198 | 256,529 | 274,512 | + 7.0 | 4.05 | 4.06 | 1,329,250 | 2.52 |
| **Unclassified** | ..... | ..... | ..... | ..... | ..... | ..... | .... | 572 | 0.00 |
| **Total United States** | 2,316,323 | 2,472,827 | 6,346,090 | 6,774,804 | + 6.8 | 100.00 | 100.00 | 52,602,867 | 100.00 |

* Data on Louisiana and Texas by districts are from various sources and do not agree with state totals, which are on Bureau of Mines basis.

# United States Crude Oil Production, By States, By Years (Part 1)

Data in thousands of barrels; from *Mineral Resources and Minerals Yearbook*, except where otherwise indicated in footnotes.

| Year | Alabama | Arkansas | California | Colorado | Florida | Illinois | Indiana | Kansas | Kentucky | Louisiana | Michigan | Mississippi | Missouri | Montana | Nebraska | Nevada | New Mexico |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1875 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1876 | ..... | ..... | 1½ | ..... | ..... | ..... | ..... | ..... | G E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1877 | ..... | ..... | 13 | ..... | ..... | ..... | ..... | ..... | G E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1878 | ..... | ..... | 15 | ..... | ..... | ..... | ..... | ..... | G E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1879 | ..... | ..... | 20 | ..... | ..... | ..... | ..... | ..... | G E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1880 | ..... | ..... | 40 | ..... | ..... | ..... | ..... | ..... | G E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1881 | ..... | ..... | 100 | ..... | ..... | ..... | ..... | ..... | G E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1882 | ..... | ..... | 129 | ..... | ..... | ..... | ..... | ..... | G E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1883 | ..... | ..... | 143 | ..... | ..... | ..... | ..... | ..... | G5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1884 | ..... | ..... | 262 | ..... | ..... | ..... | ..... | ..... | G4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1885 | ..... | ..... | 325 | ..... | ..... | ..... | ..... | ..... | G5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1886 | ..... | ..... | 377 | ..... | ..... | ..... | ..... | ..... | G5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1887 | ..... | ..... | 678 | 76 | ..... | ..... | ..... | ..... | G5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1888 | ..... | ..... | 690 | 298 | ..... | ..... | ..... | ..... | G5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1889 | ..... | ..... | 303 | 317 | ..... | 1 | 33 | 1 | G5 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1890 | ..... | ..... | 307 | 369 | ..... | 1 | .....64 | 1 | G6 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1891 | ..... | ..... | 324 | 666 | ..... | 1 | 137 | 1 | G9 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1892 | ..... | ..... | 385 | 824 | ..... | 1 | 698 | 5 | G7 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1893 | ..... | ..... | 470 | 594 | ..... | 1 | 2,335 | 18 | G3 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1894 | ..... | ..... | 706 | 516 | ..... | H | 3,689 | 40 | G2 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1895 | ..... | ..... | 1,209 | 438 | ..... | H | 4,386 | 44 | G2 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1896 | ..... | ..... | 1,253 | 361 | ..... | H | 4,681 | 114 | G2 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1897 | ..... | ..... | 1,903 | 385 | ..... | 1 | 4,122 | 81 | G H | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1898 | ..... | ..... | 2,257 | 444 | ..... | H | 3,731 | 72 | G6 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1899 | ..... | ..... | 2,642 | 390 | ..... | H | 3,848 | 70 | G18 | ..... | ..... | ..... | H | ..... | ..... | ..... | ..... |
| 1900 | ..... | ..... | 4,325 | 317 | ..... | H | 4,874 | 75 | G62 | ..... | J | ..... | J2 | ..... | ..... | ..... | ..... |
| 1901 | ..... | ..... | 8,787 | 461 | ..... | H | 5,757 | 179 | G137 | ..... | J | ..... | J2 | ..... | ..... | ..... | ..... |
| 1902 | ..... | ..... | 13,984 | 397 | ..... | H | 7,481 | 332 | G185 | 549 | J | ..... | J1 | ..... | ..... | ..... | ..... |
| 1903 | ..... | ..... | 24,382 | 484 | ..... | ..... | 9,186 | 932 | G554 | 918 | J | ..... | J3 | ..... | ..... | ..... | ..... |
| 1904 | ..... | ..... | 29,649 | 501 | ..... | ..... | 11,339 | 4,251 | G998 | 2,959 | J | ..... | J3 | ..... | ..... | ..... | ..... |
| 1905 | ..... | ..... | 33,428 | 376 | ..... | 181 | 10,964 | I3,750 | G1,217 | 8,910 | J | ..... | J3 | ..... | ..... | ..... | ..... |
| 1906 | ..... | ..... | 33,099 | 328 | ..... | 4,397 | 7,674 | I3,627 | G1,214 | 9,077 | J | ..... | J3 | ..... | ..... | ..... | ..... |
| 1907 | ..... | ..... | 39,748 | 332 | ..... | 24,282 | 5,128 | 2,410 | G821 | 5,000 | J | ..... | J4 | ..... | ..... | ..... | ..... |
| 1908 | ..... | ..... | 44,855 | 380 | ..... | 33,686 | 3,283 | 1,801 | 728 | 5,789 | J | ..... | J15 | ..... | ..... | ..... | ..... |
| 1909 | ..... | ..... | 55,472 | 311 | ..... | 30,898 | 2,296 | 1,264 | 639 | 3,060 | J | ..... | J6 | ..... | ..... | ..... | ..... |
| 1910 | ..... | ..... | 73,011 | 240 | ..... | 33,143 | 2,160 | 1,128 | 469 | 6,841 | J | ..... | J4 | ..... | ..... | ..... | ..... |
| 1911 | ..... | ..... | 81,134 | 227 | ..... | 31,317 | 1,695 | 1,279 | 472 | 10,721 | J | ..... | J8 | ..... | ..... | ..... | ..... |
| 1912 | ..... | ..... | 87,269 | 206 | ..... | 28,602 | 970 | 1,593 | 484 | 9,263 | K | ..... | ..... | ..... | ..... | ..... | ..... |
| 1913 | ..... | ..... | 97,788 | 189 | ..... | 23,894 | 956 | 2,375 | 525 | 12,499 | K | ..... | K | ..... | ..... | ..... | K |
| 1914 | ..... | ..... | 99,775 | 223 | ..... | 21,920 | 1,336 | 3,104 | 503 | 14,309 | K | ..... | K | ..... | ..... | ..... | ..... |
| 1915 | ..... | ..... | 86,592 | 208 | ..... | 19,042 | 876 | 2,823 | 437 | 18,192 | K | ..... | K | ..... | ..... | ..... | ..... |
| 1916 | ..... | ..... | 90,952 | 197 | ..... | 17,714 | 769 | 8,738 | L1,202 | 15,248 | K | ..... | K | 45 | ..... | ..... | ..... |
| 1917 | ..... | ..... | 93,878 | 121 | ..... | 15,777 | 760 | 36,536 | L3,088 | 11,392 | K | ..... | ..... | 100 | ..... | ..... | ..... |
| 1918 | ..... | ..... | 97,532 | 143 | ..... | 13,366 | 878 | 45,451 | L4,368 | 16,043 | K | ..... | ..... | 69 | ..... | ..... | ..... |
| 1919 | ..... | ..... | 101,183 | 121 | ..... | 11,960 | 972 | 33,048 | 9,278 | 17,188 | K | ..... | K | 90 | ..... | ..... | K |
| 1920 | ..... | K | 103,377 | 111 | ..... | 10,774 | 945 | 39,005 | 8,738 | 35,714 | ..... | ..... | K | 340 | ..... | ..... | K |
| 1921 | ..... | 10,473 | 112,600 | 108 | ..... | 10,043 | 1,158 | 36,456 | 9,013 | 27,103 | ..... | ..... | K | 1,509 | ..... | ..... | K |
| 1922 | ..... | 12,712 | 138,468 | 97 | ..... | 9,383 | 1,087 | 31,766 | 8,973 | 35,376 | ..... | ..... | K | 2,449 | ..... | ..... | K |
| 1923 | ..... | 36,610 | 262,876 | 86 | ..... | 8,707 | 1,043 | 28,250 | 8,069 | 24,919 | ..... | ..... | K | 2,782 | ..... | ..... | K |
| 1924 | ..... | 46,028 | 228,933 | 445 | ..... | 8,081 | 935 | 28,836 | 7,407 | 21,124 | ..... | ..... | ..... | 2,815 | ..... | ..... | 98 |
| 1925 | ..... | 77,398 | 232,492 | 1,226 | ..... | 7,863 | 829 | 38,357 | 6,759 | 20,272 | 4 | ..... | ..... | 4,091 | ..... | ..... | 1,060 |
| 1926 | ..... | 58,332 | 224,673 | 2,768 | ..... | 7,760 | 808 | 41,498 | 6,274 | 23,201 | 94 | ..... | ..... | 7,727 | ..... | ..... | 1,666 |
| 1917 | ..... | 40,005 | 231,196 | 2,831 | ..... | 6,994 | 852 | 41,069 | 6,719 | 22,818 | 439 | ..... | ..... | 5,058 | ..... | ..... | 1,226 |
| 1928 | ..... | 32,096 | 231,811 | 2,774 | ..... | 6,462 | 1,052 | 38,596 | 7,359 | 21,847 | 594 | ..... | ..... | 4,015 | ..... | ..... | 943 |
| 1929 | ..... | 24,917 | 292,534 | 2,358 | ..... | 6,319 | 981 | 42,813 | 7,775 | 20,554 | 4,528 | ..... | ..... | 3,980 | ..... | ..... | 1,830 |
| 1930 | ..... | 19,702 | 227,329 | 1,656 | ..... | 5,736 | 994 | 41,638 | 7,389 | 23,272 | 3,911 | ..... | ..... | 3,349 | ..... | ..... | 10,189 |
| 1931 | ..... | 14,791 | 188,830 | 1,545 | ..... | 5,039 | 840 | 37,018 | 6,456 | 21,804 | 3,789 | ..... | ..... | 2,830 | ..... | ..... | 15,227 |
| 1932 | ..... | 12,051 | 178,128 | 1,136 | ..... | 4,673 | 806 | 34,848 | 6,287 | 21,807 | 6,910 | ..... | K | 2,457 | ..... | ..... | 12,455 |
| 1933 | ..... | 11,686 | 172,010 | 919 | ..... | 4,244 | 737 | 41,976 | 4,608 | 25,168 | 7,942 | K | K | 2,273 | ..... | ..... | 14,116 |
| 1934 | ..... | 11,182 | 174,305 | 1,139 | ..... | 4,479 | 838 | 46,482 | 4,860 | 32,869 | 10,603 | K | K | 3,603 | ..... | ..... | 16,864 |
| 1935 | ..... | 11,008 | 207,832 | 1,560 | ..... | 4,322 | 777 | 54,843 | 5,258 | 50,330 | 15,776 | K | K | 4,603 | ..... | ..... | 20,483 |
| 1936 | ..... | 10,469 | 214,773 | 1,650 | ..... | 4,475 | 822 | 58,317 | 5,633 | 80,491 | 11,928 | ..... | K | 5,868 | ..... | ..... | 27,223 |
| 1937 | ..... | 11,764 | 238,521 | 1,605 | ..... | 7,499 | 844 | 70,761 | 5,484 | 90,924 | 16,628 | ..... | K | 5,805 | ..... | ..... | 38,854 |
| 1938 | ..... | 18,180 | 249,749 | 1,412 | ..... | 24,075 | 995 | 60,064 | 5,821 | 95,208 | 18,745 | ..... | K | 4,946 | ..... | ..... | 35,759 |
| 1939 | ..... | 21,238 | 224,354 | 1,404 | ..... | 94,912 | 1,711 | 60,703 | 5,621 | 93,646 | 23,462 | 107 | 40 | 5,960 | 2 | ..... | 37,637 |
| 1940 | ..... | 25,775 | 223,881 | 1,626 | ..... | 147,647 | 4,978 | 66,139 | 5,188 | 103,584 | 19,753 | 4,400 | 44 | 6,728 | 276 | ..... | 39,129 |
| 1941 | ..... | 26,327 | 230,263 | 2,150 | ..... | 132,393 | 7,411 | 83,242 | 4,762 | 115,908 | 16,359 | 15,327 | 47 | 7,526 | 1,898 | ..... | 39,569 |
| 1942 | ..... | 26,628 | 248,326 | 2,199 | ..... | 106,391 | 6,743 | 97,636 | 4,534 | 115,785 | 21,754 | 28,833 | 36 | 8,074 | 1,237 | ..... | 31,544 |
| 1943 | ..... | 27,600 | 284,188 | 2,320 | 4 | 82,260 | 5,283 | 106,178 | 7,883 | 123,592 | 20,768 | 18,807 | 36 | 7,916 | 635 | ..... | 38,896 |
| 1944 | 43 | 29,418 | 311,793 | 3,083 | 12 | 77,413 | 5,118 | 98,762 | 9,621 | 129,645 | 18,490 | 16,337 | 45 | 8,647 | 417 | ..... | 39,555 |
| 1945 | 181 | 28,613 | 326,482 | 5,036 | 30 | 75,094 | 4,868 | 96,415 | 10,325 | 131,051 | 17,267 | 19,062 | 45 | 8,420 | 305 | ..... | 37,351 |
| 1946 | 380 | 28,375 | 314,713 | 11,856 | 57 | 75,297 | 6,726 | 97,218 | 10,578 | 143,669 | 17,074 | 24,298 | 51 | 8,825 | 293 | ..... | 36,814 |
| 1947 | 396 | 29,948 | 333,132 | 15,702 | 259 | 66,459 | 6,095 | 105,132 | 9,397 | 160,128 | 16,215 | 34,925 | 55 | 8,742 | 229 | ..... | 40,926 |
| 1948 | 466 | 31,682 | 340,074 | 17,878 | 290 | 64,808 | 6,974 | 110,908 | 8,801 | 181,458 | 16,871 | 45,761 | 44 | 9,382 | 215 | ..... | 47,969 |
| 1949 | 462 | 29,986 | 332,942 | 23,587 | 441 | 64,501 | 9,696 | 101,868 | 8,803 | 190,826 | 16,517 | 37,966 | 49 | 9,118 | 330 | ..... | 47,645 |
| 1950 | 735 | 31,108 | 327,607 | 23,303 | 487 | 62,028 | 10,699 | 107,586 | 10,381 | 208,965 | 15,826 | 38,236 | 32 | 8,109 | 1,547 | ..... | 47,367 |
| 1951 | 1,020 | 29,798 | 354,561 | 27,823 | 596 | 60,243 | 11,100 | 114,522 | 11,622 | 232,281 | 13,927 | 37,039 | 24 | 8,958 | 2,588 | ..... | 52,719 |
| 1952 | 1,279 | 29,440 | 359,450 | 30,381 | 591 | 60,089 | 12,037 | 114,807 | 11,918 | 243,929 | 13,251 | 36,310 | 21 | 9,606 | 2,660 | ..... | 58,681 |
| 1953 | 1,694 | 29,681 | 365,085 | 36,402 | 543 | 59,026 | 12,823 | 114,566 | 11,518 | 256,632 | 12,285 | 35,620 | 39 | 11,920 | 6,344 | ..... | 70,441 |
| 1954 | 1,584 | 29,206 | 355,779 | 41,052 | 548 | 66,998 | 11,204 | 119,317 | 13,791 | 246,093 | 12,027 | 33,591 | 78 | 13,687 | 7,423 | 33 | 75,200 |
| 1955P | 1,378 | 28,349 | 354,724 | 51,055 | 489 | 81,562 | 10,953 | 121,661 | 15,113 | 267,314 | 11,334 | 37,317 | 65 | 15,484 | 9,503 | 66 | 81,778 |
| Total | 9,618 | 942,576 | 10,409,197 | 333,723 | 4,347 | 1,834,234 | 258,840 | 2,684,396 | 316,208 | 3,807,265 | 385,071 | 463,936 | 805 | 227,906 | 35,872 | 99 | 1,021,214 |

A Utah prod. est. at 3,650 bbls. in 1939; 3,126 bbls. in 1940; and 189,726 bbls. cum. through 1940.

B *Petroleum in U. S. and Possessions*, by Arnold and Kemnitzer, shows for Alas. following data: 1904-1919, est., 56,000 bbls.; 1920, 11,000 bbls; 1921, 10,000 bbls.; 1922-1928, est., 73,000 bbls.; total, 1904-1928, 150,000 bbls.

C "Unclassified" includes 1912, Alas. and Mich.; 1913, Alas., Mich., Mo. and N. Mex.; 1914-16, Alas., Mich. and Mo.; 1917-18, Alas. and Mich.; 1919, Alas., Mich., Mo. and N. Mex.; 1920, Alas., Ark., Mo., N. Mex. and Ut.; 1921-23, Alas., Mo. and N. Mex.; 1924-31, Alas. and Ut.; 1932, Alas., Mo. and Ut.; 1933, Alas., Mis., Mo. and Ut.; 1934, Mis., Mo. and Ut.; 1935, Mis., Mo., Ten. and Ut.; 1936-1938; Mo., Ten. and Ut.

D Pa. and N. Y. separated in years 1864-1881, by aid of *Petroleum in U. S. and Possessions*, by Arnold and Kemnitzer.

E *Petroleum in U. S. and Possessions* gives following additional estimates not shown by official *Mineral Resources*; O., 1860-1875, 200,000 bbls.; W. Va., 1860-1875, 2,800,000 bbls.; Ky., 1860-1882, 161,000 bbls.

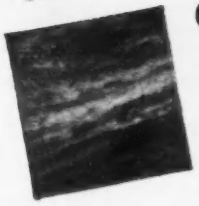
F N. Y. incl. with Pa.

IN

# WATER FLOODING OPERATIONS

# STOP PLUGGING

due to SCALE
CORROSION
TURBIDITY
MICRO-ORGANISMS



with

## THE *Nalco* SYSTEM

■ You can keep water injection volume up, maintenance and replacement costs down with a Nalco program *designed to fit your specific operating conditions.*

Your Nalco Field Service Representative is skilled in water treatment—and is backed by the world's largest water treatment organization. His recommendations for your treating program, and continuing responsibility, will be aimed at keeping your water *and oil* conditioned for best operating results at the lowest possible cost. Call him today, or call us direct, for prompt action.

**NATIONAL ALUMINATE CORPORATION**
*Telephone Portsmouth 7-7240!*
**6286 W. 66th Place • Chicago 38, Illinois**
*In Canada: Alchem Limited, Burlington, Ontario*

**THE *Nalco*® SYSTEM • Serving the Petroleum Industry through Practical Applied Science**

# United States Crude Oil Production, By States, By Years (Part 2)

Data in thousands of barrels; from *Mineral Resources and Minerals Yearbook*, except where otherwise indicated in footnotes.

## New York, Ohio, Pennsylvania, West Virginia, and U. S. Total, 1859-1885

| Year | New York | Pennsylvania | U.S. | Value at Wells $1,000 | [O] Value per Bbl. $ | Year | New York | Pennsylvania | Total U.S. | Value at Wells $1,000 | [O] Value per Bbl. $ | Year | New York | Ohio | Pennsylvania | W. Va. | Total U.S. | Value at Wells $1,000 | [O] Value per Bbl. $ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1856 | ..... | ..... | ..... | ..... | ..... | 1866 | [D]144 | [D]3,454 | 3,598 | 13,455 | 3.75 | 1876 | [D]359 | 32 | [D]8,610 | 120 | 9,133 | 22,983 | 2.52 |
| 1857 | ..... | ..... | ..... | ..... | ..... | 1867 | [D]134 | [D]3,213 | 3,347 | 8,067 | 2.40 | 1877 | [D]525 | 30 | [D]12,610 | 172 | 13,350 | 31,789 | 2.38 |
| 1858 | ..... | ..... | ..... | ..... | ..... | 1868 | [D]146 | [D]3,500 | 3,646 | 13,217 | 3.62 | 1878 | [D]607 | 38 | [D]14,557 | 180 | 15,397 | 18,045 | 1.17 |
| 1859 | ..... | 2 | 2 | 32 | 20.00 | 1869 | [D]169 | [D]4,046 | 4,215 | 23,730 | 5.60 | 1879 | [D]787 | 29 | [D]18,898 | 180 | 19,914 | 17,211 | .86 |
| 1860 | ..... | 500 | 500 | 4,800 | 9.60 | 1870 | [D]211 | [D]5,050 | 5,261 | 20,504 | 3.90 | 1880 | [D]1,041 | 39 | [D]24,987 | 179 | 26,286 | 24,601 | .94 |
| 1861 | ..... | 2,114 | 2,114 | 1,036 | .52 | 1871 | [D]208 | [D]4,997 | 5,205 | 22,591 | 4.40 | 1881 | [D]1,095 | 34 | [D]26,281 | 151 | 27,661 | 25,448 | .92 |
| 1862 | ..... | 3,057 | 3,057 | 3,210 | 1.05 | 1872 | [D]252 | [D]6,041 | 6,293 | 21,440 | 3.75 | 1882 | 6,685 | 40 | 23,368 | 128 | 30,350 | 23,631 | .78 |
| 1863 | ..... | 2,611 | 2,611 | 8,226 | 3.15 | 1873 | [D]396 | [D]9,498 | 9,894 | 18,100 | 1.80 | 1883 | 4,004 | 47 | 19,125 | 126 | 23,450 | 25,790 | 1.10 |
| 1864 | [D F H] | [D F]2,116 | 2,116 | 20,897 | 8.15 | 1874 | [D]437 | [D]10,490 | 10,927 | 12,648 | 1.15 | 1884 | 3,231 | 90 | 20,541 | 90 | 24,218 | 20,596 | .85 |
| 1865 | [D]100 | [D]2,398 | 2,498 | 16,460 | 6.59 | 1875 | [D]352 | [L]8,436 | 8,788 | 7,368 | .97 | 1885 | 2,658 | 682 | 18,118 | 91 | 21,859 | 19,198 | .88 |

## New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wyoming, and U. S. Total, 1886 to Now

| Year | New York | N. Dakota | Ohio | Oklahoma | Pennsylvania | S. Dakota | Tennessee | Texas | [A] Utah | Virginia | W. Virginia | Wyoming | [B] Alaska | [C] Unclassified | Total United States | Value at Wells $1,000 | [O] Value per Bbl. $ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1886 | 2,151 | ..... | 1,783 | ..... | 23,647 | ..... | [G] | ..... | ..... | ..... | 102 | ..... | ..... | ..... | 28,065 | 19,996 | .71 |
| 1887 | 2,075 | ..... | 5,023 | ..... | 20,281 | ..... | [G] | ..... | ..... | ..... | 145 | ..... | ..... | ..... | 28,283 | 18,877 | .67 |
| 1888 | 1,789 | ..... | 10,011 | ..... | 14,700 | ..... | [G] | ..... | ..... | ..... | 119 | ..... | ..... | ..... | 27,612 | 17,948 | .65 |
| 1889 | 1,897 | ..... | 12,472 | ..... | 19,591 | ..... | [G] | [H] | ..... | ..... | 544 | ..... | ..... | ..... | 35,164 | 26,963 | .77 |
| 1890 | 1,658 | ..... | 16,125 | ..... | 26,800 | ..... | [G] | ..... | ..... | ..... | 493 | ..... | ..... | ..... | 45,824 | 35,367 | .77 |
| 1891 | 1,585 | ..... | 17,740 | [H] | 31,424 | ..... | [G] | [H] | ..... | ..... | 2,406 | ..... | ..... | ..... | 54,293 | 30,527 | .56 |
| 1892 | 1,273 | ..... | 16,363 | [H] | 27,149 | ..... | [G] | [H] | ..... | ..... | 3,810 | ..... | ..... | ..... | 50,515 | 25,907 | .51 |
| 1893 | 1,032 | ..... | 16,249 | [H] | 19,283 | ..... | [G] | [H] | ..... | ..... | 8,446 | ..... | ..... | ..... | 48,431 | 28,950 | .60 |
| 1894 | 942 | ..... | 16,792 | [H] | 18,078 | ..... | [G] | [H] | ..... | ..... | 8,577 | 2 | ..... | ..... | 49,344 | 35,522 | .72 |
| 1895 | 913 | ..... | 19,545 | [H] | 18,231 | ..... | [G] | [H] | ..... | ..... | 8,120 | 4 | ..... | ..... | 52,892 | 57,632 | 1.09 |
| 1896 | 1,205 | ..... | 23,941 | [H] | 19,379 | ..... | [G] | 1 | ..... | ..... | 10,020 | 3 | ..... | ..... | 60,960 | 58,519 | .96 |
| 1897 | 1,279 | ..... | 21,561 | 1 | 17,983 | ..... | [G] | 66 | ..... | ..... | 13,090 | 4 | ..... | ..... | 60,476 | 40,874 | .68 |
| 1898 | 1,205 | ..... | 18,739 | ..... | 14,743 | ..... | [G] | 546 | ..... | ..... | 13,615 | 6 | ..... | ..... | 55,364 | 44,193 | .80 |
| 1899 | 1,321 | ..... | 21,142 | ..... | 13,054 | ..... | [G] | 669 | ..... | ..... | 13,911 | 6 | ..... | ..... | 57,071 | 64,604 | 1.13 |
| 1900 | 1,301 | ..... | 22,363 | 6 | 13,258 | ..... | [G] | 836 | ..... | ..... | 16,196 | 6 | ..... | ..... | 63,621 | 75,989 | 1.19 |
| 1901 | 1,207 | ..... | 21,648 | 10 | 12,625 | ..... | [G] | 4,394 | ..... | ..... | 14,177 | 5 | ..... | ..... | 69,389 | 66,417 | .96 |
| 1902 | 1,120 | ..... | 21,014 | 37 | 12,064 | ..... | [G] | 18,084 | ..... | ..... | 13,513 | 6 | ..... | ..... | 88,767 | 71,179 | .80 |
| 1903 | 1,163 | ..... | 20,480 | 139 | 11,355 | ..... | [G] | 17,956 | ..... | ..... | 12,900 | 9 | ..... | ..... | 100,461 | 94,694 | .94 |
| 1904 | 1,113 | ..... | 18,877 | 1,367 | 11,126 | ..... | [G] | 22,241 | ..... | ..... | 12,645 | 12 | [N] | ..... | 117,081 | 101,175 | .86 |
| 1905 | 1,118 | ..... | 16,347 | [I]8,264 | 10,437 | ..... | [G] | 28,136 | ..... | ..... | 11,578 | 8 | ..... | ..... | 134,717 | 84,157 | .62 |
| 1906 | 1,243 | ..... | 14,788 | [I]18,091 | 10,257 | ..... | [G] | 12,568 | ..... | ..... | 10,121 | 7 | ..... | ..... | 126,494 | 92,445 | .73 |
| 1907 | 1,212 | ..... | 12,207 | 43,524 | 10,000 | ..... | [G] | 12,323 | [M] | ..... | 9,095 | [M]9 | [N] | ..... | 166,095 | 120,107 | .72 |
| 1908 | 1,160 | ..... | 10,859 | 45,799 | 9,424 | ..... | ..... | 11,207 | [M] | ..... | 9,523 | [M]18 | ..... | ..... | 178,527 | 129,079 | .72 |
| 1909 | 1,135 | ..... | 10,633 | 47,859 | 9,299 | ..... | ..... | 9,534 | [M] | ..... | 10,745 | [M]20 | ..... | ..... | 183,171 | 128,329 | .70 |
| 1910 | 1,054 | ..... | 9,916 | 52,029 | 8,795 | ..... | ..... | 8,899 | [M] | ..... | 11,753 | [M]115 | ..... | ..... | 209,557 | 127,900 | .61 |
| 1911 | 953 | ..... | 8,817 | 56,069 | 8,248 | ..... | ..... | 9,526 | [M] | ..... | 9,796 | [M]187 | [N] | ..... | 220,449 | 134,045 | .61 |
| 1912 | 874 | ..... | 8,969 | 51,427 | 7,838 | ..... | ..... | 11,735 | [M] | ..... | 12,129 | [M]1,572 | [K] | 4 | 222,935 | 164,213 | .74 |
| 1913 | 948 | ..... | 8,781 | 63,579 | 7,917 | ..... | ..... | 15,010 | [N] | ..... | 11,567 | 2,407 | [K] | 11 | 248,446 | 237,121 | .95 |
| 1914 | 939 | ..... | 8,536 | 73,632 | 8,170 | ..... | ..... | 20,068 | [N] | ..... | 9,680 | 3,560 | [K] | 8 | 265,763 | 214,125 | .81 |
| 1915 | 888 | ..... | 7,825 | 97,915 | 7,838 | ..... | ..... | 24,943 | [N] | ..... | 9,265 | 4,246 | [K] | 14 | 281,104 | 179,463 | .64 |
| 1916 | 874 | ..... | 7,744 | 107,072 | 7,593 | ..... | [L]1 | 27,645 | [N] | ..... | 8,731 | 6,234 | [K] | 8 | 300,767 | 330,900 | 1.10 |
| 1917 | 880 | ..... | 7,751 | 107,508 | 7,733 | ..... | [L]12 | 32,413 | [N] | ..... | 8,379 | 8,978 | [K] | 10 | 335,316 | 522,635 | 1.56 |
| 1918 | 809 | ..... | 7,285 | 103,347 | 7,408 | ..... | [L]8 | 38,750 | [N] | ..... | 7,867 | 12,596 | [K] | 8 | 355,928 | 703,944 | 1.98 |
| 1919 | 851 | ..... | 7,736 | 86,911 | 8,137 | ..... | 15 | 79,366 | [N] | ..... | 8,327 | 13,172 | [K] | 12 | 378,367 | 760,266 | 2.01 |
| 1920 | 906 | ..... | 7,400 | 106,206 | 7,438 | ..... | 14 | 96,868 | [K] | ..... | 8,249 | 16,831 | [K] | 13 | 442,929 | 1,360,745 | 3.07 |
| 1921 | 988 | ..... | 7,335 | 114,634 | 7,418 | ..... | 12 | 106,166 | ..... | ..... | 7,822 | 19,333 | [K] | 12 | 472,183 | 814,745 | 1.73 |
| 1922 | 1,000 | ..... | 6,781 | 149,571 | 7,425 | ..... | 10 | 118,684 | ..... | ..... | 7,021 | 26,715 | [K] | 13 | 557,531 | 895,111 | 1.61 |
| 1923 | 1,250 | ..... | 7,085 | 160,929 | 7,609 | ..... | 8 | 131,023 | ..... | ..... | 6,358 | 44,785 | [K] | 18 | 732,407 | 978,430 | 1.34 |
| 1924 | 1,440 | ..... | 6,811 | 173,538 | 7,486 | ..... | 10 | 134,522 | [K] | ..... | 5,920 | 39,498 | [K] | 13 | 713,940 | 1,022,683 | 1.43 |
| 1925 | 1,695 | ..... | 7,212 | 176,768 | 8,097 | ..... | 24 | 144,648 | [K] | ..... | 5,763 | 29,173 | [K] | 12 | 763,743 | 1,284,960 | 1.68 |
| 1926 | 1,956 | ..... | 7,272 | 179,195 | 8,961 | ..... | 43 | 166,916 | [K] | ..... | 5,946 | 25,776 | [K] | 8 | 770,874 | 1,447,760 | 1.88 |
| 1927 | 2,242 | ..... | 7,593 | 277,775 | 9,526 | ..... | 60 | 217,389 | [K] | ..... | 6,023 | 21,307 | [K] | 7 | 901,129 | 1,172,830 | 1.30 |
| 1928 | 2,603 | ..... | 7,015 | 249,857 | 9,956 | ..... | 46 | 257,320 | [K] | ..... | 5,661 | 21,461 | [K] | 6 | 901,474 | 1,054,880 | 1.17 |
| 1929 | 3,377 | ..... | 6,743 | 255,004 | 11,820 | ..... | 19 | 296,876 | [K] | ..... | 5,574 | 19,314 | [K] | 7 | 1,007,323 | 1,280,417 | 1.27 |
| 1930 | 3,647 | ..... | 6,486 | 216,486 | 12,803 | ..... | 21 | 290,457 | [K] | ..... | 5,071 | 17,868 | [K] | 7 | 898,011 | 1,070,200 | 1.19 |
| 1931 | 3,363 | ..... | 5,327 | 180,574 | 11,892 | ..... | 6 | 332,437 | [K] | ..... | 4,472 | 14,834 | [K] | 7 | 851,081 | 550,630 | .65 |
| 1932 | 3,508 | ..... | 4,644 | 153,244 | 12,412 | ..... | 5 | 312,478 | [K] | ..... | 3,876 | 13,418 | [K] | 16 | 785,159 | 680,460 | .87 |
| 1933 | 3,181 | ..... | 4,235 | 182,251 | 12,624 | ..... | 5 | 402,609 | [K] | ..... | 3,815 | 11,227 | [K] | 30 | 905,656 | 608,000 | .67 |
| 1934 | 3,804 | ..... | 4,234 | 180,107 | 14,478 | ..... | 10 | 381,516 | [K] | ..... | 4,095 | 12,556 | ..... | 41 | 908,065 | 904,825 | 1.00 |
| 1935 | 4,236 | ..... | 4,082 | 185,288 | 15,810 | ..... | [K] | 392,666 | [K] | ..... | 3,902 | 13,755 | ..... | 65 | 996,596 | 961,440 | .96 |
| 1936 | 4,663 | ..... | 3,847 | 206,555 | 17,070 | ..... | [K] | 427,411 | [K] | ..... | 3,847 | 14,582 | ..... | 63 | 1,099,687 | 1,199,820 | 1.09 |
| 1937 | 5,478 | ..... | 3,559 | 228,839 | 19,189 | ..... | [K] | 510,318 | [K] | ..... | 3,845 | 19,166 | ..... | 77 | 1,279,160 | 1,513,340 | 1.18 |
| 1938 | 5,045 | ..... | 3,298 | 174 994 | 17,426 | ..... | [K] | 475,850 | [K] | ..... | 3,684 | 19,022 | ..... | 82 | 1,214,355 | 1,373,060 | 1.13 |
| 1939 | 5,098 | ..... | 3,156 | 159,913 | 17,382 | ..... | 50 | 483,528 | 4 | ..... | 3,580 | 21,454 | ..... | ..... | 1,264,962 | 1,294,470 | 1.02 |
| 1940 | 4,999 | ..... | 3,159 | 156,164 | 17,353 | ..... | 24 | 493,209 | 3 | ..... | 3,444 | 25,711 | ..... | ..... | 1,353,214 | 1,385,440 | 1.02 |
| 1941 | 5,185 | ..... | 3,510 | 154,702 | 16,750 | ..... | 12 | 505,572 | 4 | ..... | 3,433 | 29,878 | ..... | ..... | 1,402,228 | 1,602,000 | 1.14 |
| 1942 | 5,421 | ..... | 3,543 | 140,690 | 17,779 | ..... | 9 | 483,097 | ..... | ..... | 3,574 | 32,812 | ..... | ..... | 1,386,645 | 1,643,470 | 1.19 |
| 1943 | 5,059 | ..... | 3,322 | 123,152 | 15,757 | ..... | 10 | 594,343 | ..... | 2 | 3,349 | 34,253 | ..... | ..... | 1,505,613 | 1,809,020 | 1.20 |
| 1944 | 4,697 | ..... | 2,937 | 124,616 | 14,118 | ..... | 8 | 746,699 | ..... | 4 | 3,070 | 33,356 | ..... | ..... | 1,677,904 | 2,032,960 | 1.21 |
| 1945 | 4,648 | ..... | 2,828 | 139,299 | 12,515 | ..... | 8 | 754,710 | ..... | 4 | 2,879 | 36,219 | ..... | ..... | 1,713,655 | 2,094,250 | 1.22 |
| 1946 | 4,863 | ..... | 2,908 | 134,794 | 12,996 | ..... | 10 | 760,215 | ..... | 23 | 2,929 | 38,977 | ..... | ..... | 1,733,939 | 2,442,550 | 1.41 |
| 1947 | 4,762 | ..... | 3,108 | 141,019 | 12,690 | ..... | 8 | 820,210 | ..... | 61 | 2,617 | 44,772 | ..... | ..... | 1,856,987 | 3,577,890 | 1.93 |
| 1948 | 4,621 | ..... | 3,600 | 154,455 | 12,667 | ..... | 6 | 903,498 | ..... | 33 | 2,692 | 55,032 | ..... | ..... | 2,020,185 | 5,245,080 | 2.60 |
| 1949 | 4,425 | ..... | 3,483 | 151,660 | 11,374 | ..... | 18 | 744,834 | 637 | 43 | 2,839 | 47,890 | ..... | ..... | 1,841,940 | 4,674,770 | 2.54 |
| 1950 | 4,143 | ..... | 3,383 | 164,599 | 11,859 | ..... | 12 | 829,874 | 1,228 | 21 | 2,808 | 61,631 | ..... | ..... | 1,973,574 | 4,963,380 | 2.51 |
| 1951 | 4,254 | 25 | 3,140 | 186,869 | 11,345 | ..... | 14 | 1,010,270 | 1,305 | 12 | 2,757 | 68,929 | ..... | ..... | 2,247,711 | 5,690,410 | 2.53 |
| 1952 | 4,242 | 1,549 | 3,350 | 190,435 | 11,233 | ..... | 15 | 1,022,139 | 1,737 | 10 | 2,602 | 68,074 | ..... | ..... | 2,289,836 | 5,785,230 | 2.53 |
| 1953 | 3,800 | 5,183 | 3,610 | 202,570 | 10,649 | ..... | 16 | 1,019,164 | 1,807 | 8 | 3,038 | 82,618 | ..... | ..... | 2,357,082 | 6,316,980 | 2.68 |
| 1954 | 3,257 | 5,979 | 3,829 | 186,349 | 9,107 | 34 | 17 | 981,722 | 1,873 | 10 | 2,902 | 93,633 | ..... | ..... | 2,316,323 | 6,393,051 | 2.76 |
| 1955[P] | 3,085 | 10,971 | 4,322 | 201,791 | 8,270 | 30 | 16 | 1,051,567 | 2,084 | 16 | 2,332 | 100,198 | ..... | ..... | 2,472,827 | 6,849,731 | 2.77 |
| Total | 195,649 | 23,707 | 639,250 | 7,229,478 | 1,175,767 | 64 | 582 | 18,807,721 | 10,682 | 247 | 454,591 | 1,329,250 | ..... | 572 | 52,602,867 | 89,264,151 | 1.70 |

[G] Tenn. incl. with Ky., 1876-1907, incl.

[H] Less than 500 bbls.

[I] Figures for Okla. and Kan. for years 1905-1906 shown together by *Mineral Resources;* here divided by aid of *Petroleum in U. S. and Possessions*, by Arnold and Kemnitzer.

[J] Mich. shown with Mo. in 1900-1911.

[K] Included under "Unclassified."

[L] Ky. and Tenn. in 1916-18 obtained with aid of *Mineral Resources and Petroleum in U. S. and Possessions.*

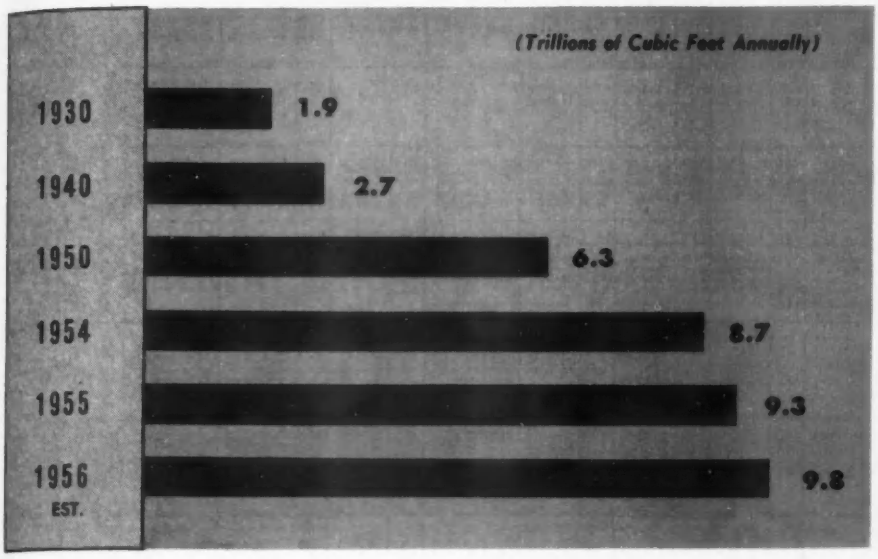
[M] Small prod. of Ut. (mostly used as fuel) shown with Wyo.

[N] Little prod. but no record available.

[O] Average price per bbl. for 1859-1875 from *Petroleum in U. S. and Possessions;* remainder from *Mineral Resources* and *Minerals Yearbook* except 1950 and 1951 estimated.

[P] Bureau of Mines for first 10 months; Nov. and Dec. est. by WORLD OIL, from weekly reports of API and other sources.

**RAPID GROWTH IN MARKETED U. S. NATURAL GAS PRODUCTION**




# Natural Gas Production and Use . . . Marketed production may reach nearly 10 trillion cubic feet during 1956.

SPECTACULAR GROWTH of the U. S. natural gas industry will continue during 1956. Additional consumption is expected to occur. Consequently, marketed production is likely to reach nearly 10 trillion cubic feet during the year. This will be ⅔ billion cubic feet more than during 1955, and far above earlier years.

Prospective marketed production in 1956 is more than double the volume in 1947, and better than 50 percent larger than in 1950.

**More Areas Served.** Natural gas transmission systems are continuing to spread into new areas. Supplies also are being augmented in regions already served. With completion of the Pacific Northwest pipe line during 1956, only two states in the nation will not be receiving natural gas.

These developments are resulting in rapid growth of natural gas customers. More than 24 million customers were receiving natural gas at the beginning of 1956, a gain of almost 2 million, and an increase of 8.4 percent over the 22,159,000 natural gas customers served at the beginning of 1955.

In 1950 there were only 15 million natural gas customers in the nation, and in 1946 there were fewer than 10 million customers. The number currently served is 2½ times greater, and marketed production has grown in proportion.

**Big Strides in 1955.** The U. S. natural gas industry experienced giant strides during 1955.

A total of 9.37 trillion cubic feet of natural gas was marketed during the year, 633 billion cubic feet more than in 1954. This was 1 trillion more than marketed output in 1953.

Gross production amounted to 11.6 trillion cubic feet, and exceeded the 1954 level by 641 billion. Of the gross figure, 1.5 trillion cubic feet was used for oil field repressuring, and 700 billion cubic feet was vented and wasted. The volume vented and wasted has been cut from a peak of 1.8 trillion cubic feet in 1948. The remainder of the gross production was marketed.

One third of the gas production came from oil producing wells. This portion has remained fairly consistent over the years.

**More Gas Shipped Out of State.** An increasing portion of the marketed natural gas production is consumed outside the states which produced the gas. During 1955, the amount consumed outside the state in which it was produced rose to 57 percent. In the previous year, only 52 percent was consumed in other states.

Interstate shipments in 1955 totaled 5⅓ trillion cubic feet. This contrasted with only 1¾ trillion cubic feet in 1948, and but 2½ trillion cubic feet in 1950.

**Gross Withdrawals and Disposition of Natural Gas in the United States, by States, in 1954**

Source: U. S. Bureau of Mines Mineral Market Report No. MMS 2446, Dated Nov. 23, 1955—Data in Million Cubic Feet

| STATE | GROSS WITHDRAWLS[1] | | | DISPOSITION | | |
|---|---|---|---|---|---|---|
| | From Gas Wells | From Oil Wells | Total | Marketed Production[2] | Repressuring | Vented and Wasted[3] |
| Arkansas | 36,000 | 20,000 | 56,000 | 33,471 | 18,568 | 3,961 |
| California | 190,000 | 569,000 | 759,000 | 507,289 | 242,422 | 9,289 |
| Colorado | 26,000 | 50,000 | 76,000 | 45,705 | 19,335 | 10,960 |
| Illinois | 300 | 36,000 | 36,300 | 9,475 | 443 | 26,382 |
| Indiana | 100 | 6,000 | 6,100 | 735 | 50 | 5,315 |
| Kansas | 390,000 | 72,000 | 462,000 | 412,369 | 2,203 | 47,428 |
| Kentucky | 71,000 | 3,700 | 74,700 | 72,713 | ..... | 1,987 |
| Louisiana | 1,325,000 | 375,000 | 1,700,000 | 1,399,222 | 215,491 | 85,287 |
| Maryland | 1,394 | ..... | 1,394 | 1,394 | ..... | ..... |
| Michigan | 4,500 | 5,600 | 10,100 | 6,962 | 1,876 | 1,262 |
| Mississippi | 167,000 | 70,000 | 237,000 | 140,448 | 58,645 | 37,907 |
| Montana | 27,000 | 3,700 | 30,700 | 30,252 | 178 | 270 |
| Nebraska | 5,500 | 3,500 | 9,000 | 6,801 | ..... | 2,199 |
| New Mexico | 277,000 | 216,000 | 493,000 | 449,346 | 4,043 | 39,611 |
| New York | 2,500 | 500 | 3,000 | 2,598 | ..... | 402 |
| North Dakota | 400 | 8,000 | 8,400 | 1,093 | ..... | 7,307 |
| Ohio | 29,000 | 2,000 | 31,000 | 28,824 | 57 | 2,119 |
| Oklahoma | 503,000 | 410,000 | 913,000 | 616,355 | 106,119 | 190,526 |
| Pennsylvania | 144,400 | 2,300 | 146,700 | 145,934 | 214 | 552 |
| Texas | 4,020,000 | 1,600,000 | 5,620,000 | 4,551,232 | 840,070 | 228,698 |
| Utah | 16,000 | 400 | 16,400 | 16,024 | ..... | 376 |
| Virginia | 1,401 | ..... | 1,401 | 1,401 | ..... | ..... |
| West Virginia | 189,000 | 4,000 | 193,000 | 191,601 | 137 | 1,262 |
| Wyoming | 39,400 | 61,000 | 100,400 | 71,068 | 8,886 | 20,446 |
| Other States[4] | 112 | 143 | 255 | 234 | ..... | 21 |
| Total: 1954 | 7,466,007 | 3,518,843 | 10,984,850 | 8,742,546 | 1,518,737 | 723,567 |
| 1953 | 7,095,237 | 3,550,561 | 10,645,798 | 8,396,916 | 1,438,606 | 810,276 |

[1] Marketed production plus quantities used in repressuring, vented, and wasted.
[2] Comprises gas sold or consumed by producers, including losses in transmission, amounts added to storage, and increases in gas in pipelines.
[3] Partly estimated. Includes direct waste on producing properties and residue blown to the air.
[4] Alabama, Florida, Missouri, South Dakota, and Tennessee.

## United States Marketed Production of Natural Gas, By States, By Years

(Millions of Cubic Feet)

Sources: U. S. Bureau of Mines, except for some figures for early years which are from "Petroleum in the United States and Possessions" by Ralph Arnold and William Kemnitzer, and except where otherwise indicated by footnotes.

| YEAR | Alabama | Arkansas | California | Colorado | Florida | Illinois | Indiana | Kansas | Kentucky | Louisiana | Maryland | Michigan | Mississippi | Missouri | Montana | Nebraska | New Mexico | New York |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Pre-1906 | ..... | 281 | 9,810 | 631 | ..... | 1,505 | 471,800 | 81,865 | 13,243 | 31 | ..... | ..... | ..... | *613 | ..... | ..... | ..... | 31,340 |
| 1906 | ..... | 21 | 153 | 23 | ..... | 410 | 7,861 | 69,323 | 789 | 39 | ..... | ..... | ..... | 34 | ..... | ..... | ..... | 2,548 |
| 1907 | ..... | *570 | 230 | 57 | ..... | 1,155 | 6,624 | 76,707 | 1,303 | 88 | ..... | ..... | ..... | 108 | ..... | ..... | ..... | 3,288 |
| 1908 | ..... | *1,208 | 479 | 50 | ..... | 4,979 | 5,256 | 80,740 | 1,430 | 252 | ..... | ..... | ..... | 152 | ..... | ..... | ..... | 3,843 |
| 1909 | ..... | *1,778 | 2,324 | *45 | ..... | 8,473 | 6,159 | 75,074 | 2,097 | 1,365 | ..... | 1 | ..... | 49 | ..... | ..... | ..... | 4,696 |
| 1910 | ..... | *2,412 | 2,764 | *40 | ..... | 6,723 | 5,760 | 59,380 | 1,357 | 4,110 | ..... | 1 | ..... | 47 | ..... | ..... | ..... | 6,010 |
| 1911 | ..... | *1,994 | 6,390 | *35 | ..... | 6,762 | 4,365 | 38,800 | 1,275 | 9,786 | ..... | 2 | ..... | 50 | ..... | ..... | ..... | 5,240 |
| 1912 | ..... | *1,465 | 9,355 | *30 | ..... | 5,603 | 3,618 | 28,068 | 1,951 | 14,493 | ..... | 2 | ..... | 53 | ..... | ..... | ..... | 8,626 |
| 1913 | ..... | *806 | 11,035 | *27 | ..... | 4,767 | 2,921 | 22,884 | 1,821 | 26,653 | ..... | 2 | ..... | 21 | ..... | ..... | ..... | 8,515 |
| 1914 | ..... | *633 | 17,829 | *24 | ..... | 3,548 | 2,580 | 22,628 | 1,422 | 26,745 | ..... | 2 | ..... | 18 | ..... | ..... | ..... | 8,935 |
| 1915 | ..... | 992 | 21,891 | *21 | ..... | 2,690 | 2,261 | 27,046 | 1,667 | 25,540 | ..... | 2 | ..... | 27 | 6 | ..... | ..... | 7,977 |
| 1916 | ..... | 2,388 | 31,643 | *18 | ..... | 3,534 | 1,715 | 31,710 | 2,107 | 32,081 | ..... | 1 | ..... | 69 | 213 | ..... | ..... | 8,036 |
| 1917 | ..... | 5,610 | 49,427 | *14 | ..... | 4,439 | 1,712 | 24,439 | 2,802 | 31,287 | ..... | 1 | ..... | 31 | 334 | ..... | ..... | 8,372 |
| 1918 | ..... | 5,295 | 39,719 | 10 | ..... | 4,473 | 1,667 | 27,825 | 3,022 | 36,094 | ..... | 1 | ..... | 22 | 177 | ..... | ..... | 8,461 |
| 1919 | ..... | 5,587 | 55,607 | 10 | ..... | 3,825 | 1,407 | 16,150 | 2,057 | 47,062 | ..... | 1 | ..... | 5 | 858 | ..... | ..... | 8,124 |
| 1920 | ..... | 9,027 | 66,041 | 9 | ..... | 3,013 | 1,779 | 21,158 | 3,345 | 58,274 | ..... | 1 | ..... | 4 | 818 | ..... | ..... | 8,419 |
| 1921 | ..... | 4,260 | 75,942 | 4 | ..... | 2,646 | 1,066 | 15,717 | 4,820 | 58,004 | ..... | 1 | ..... | 4 | 336 | ..... | ..... | 6,583 |
| 1922 | ..... | 9,700 | 84,580 | 4 | ..... | 3,383 | 947 | 20,289 | 5,872 | 70,267 | ..... | 1 | ..... | 3 | 486 | ..... | ..... | 6,947 |
| 1923 | ..... | 24,215 | 131,434 | 1 | ..... | 4,049 | 880 | 30,913 | 11,953 | 112,031 | ..... | 1 | ..... | 17 | 1,470 | ..... | ..... | 6,497 |
| 1924 | ..... | 36,616 | 189,602 | 48 | ..... | 4,072 | 998 | 25,580 | 12,875 | 160,945 | ..... | 1 | ..... | 71 | 1,071 | ..... | ..... | 6,196 |
| 1925 | ..... | 41,878 | 187,789 | 574 | ..... | 4,165 | 1,168 | 26,917 | 10,770 | 152,620 | ..... | 1 | ..... | 34 | 1,496 | ..... | ..... | 6,210 |
| 1926 | ..... | 43,566 | 204,915 | 554 | ..... | 3,808 | 901 | 38,095 | 10,410 | 157,423 | ..... | 1 | ..... | 1 | 2,283 | ..... | 921 | 7,027 |
| 1927 | ..... | 30,450 | 212,364 | 1,725 | ..... | 3,741 | 1,124 | 42,646 | 10,206 | 186,961 | ..... | 1 | ..... | 1 | 4,253 | ..... | 1,019 | 5,908 |
| 1928 | ..... | 20,235 | 246,215 | 2,931 | ..... | 3,051 | 1,290 | 45,644 | 15,383 | 227,821 | ..... | 469 | ..... | 360 | 6,277 | ..... | 838 | 7,224 |
| 1929 | ..... | 19,928 | 342,214 | 2,787 | ..... | 2,983 | 1,012 | 38,469 | 27,588 | 261,138 | ..... | 4,526 | 90 | 324 | 9,659 | ..... | 3,054 | 8,387 |
| 1930 | ..... | 18,585 | 334,789 | 3,312 | ..... | 2,890 | 1,217 | 37,630 | 28,023 | 278,341 | ..... | 2,075 | 179 | 1,064 | 10,060 | ..... | 9,497 | 9,624 |
| 1931 | ..... | 13,300 | 305,930 | 2,536 | ..... | 2,130 | 1,337 | 38,742 | 27,870 | 224,155 | ..... | 472 | 6,048 | 1,534 | 10,949 | ..... | 19,354 | 7,868 |
| 1932 | ..... | 10,235 | 263,484 | 2,547 | ..... | 1,769 | 1,349 | 40,690 | 29,005 | 201,561 | ..... | 968 | 8,648 | 932 | 13,295 | ..... | 17,604 | 8,813 |
| 1933 | ..... | 8,288 | 259,799 | 2,449 | ..... | 1,631 | 1,544 | 41,596 | 31,380 | 197,826 | ..... | 1,528 | 8,679 | 673 | 14,391 | ..... | 19,148 | 6,865 |
| 1934 | ..... | 7,024 | 268,122 | 2,633 | ..... | 1,868 | 1,802 | 46,909 | 33,124 | 225,713 | ..... | 2,789 | 8,245 | 549 | 14,971 | ..... | 24,075 | 6,278 |
| 1935 | ..... | 6,167 | 284,109 | 2,843 | ..... | 1,448 | 1,777 | 57,125 | 39,738 | 249,450 | ..... | 4,203 | 9,643 | 609 | 19,870 | ..... | 27,931 | 8,288 |
| 1936 | ..... | 8,500 | 320,406 | 3,687 | ..... | 865 | 2,241 | 69,178 | 43,903 | 290,151 | ..... | 7,167 | 11,821 | 399 | 23,003 | ..... | 33,928 | 12,431 |
| 1937 | ..... | 9,690 | 329,769 | 3,186 | ..... | 1,040 | 1,551 | 83,890 | 55,719 | 315,301 | ..... | 9,080 | 13,348 | 444 | 24,765 | ..... | 46,337 | 21,325 |
| 1938 | ..... | 11,301 | 315,168 | 1,904 | ..... | 1,169 | 1,299 | 75,203 | 46,163 | 283,899 | ..... | 10,165 | 13,656 | 1,369 | 21,216 | ..... | 50,706 | 39,402 |
| 1939 | ..... | 10,107 | 348,361 | 2,015 | ..... | 2,746 | 791 | 80,556 | 47,771 | 294,370 | ..... | 10,726 | 14,527 | 538 | 23,178 | ..... | 60,284 | 29,222 |
| 1940 | ..... | 14,379 | 351,950 | 2,533 | ..... | 8,359 | 1,137 | 90,003 | 53,056 | 343,191 | ..... | 12,648 | 6,365 | 310 | 26,231 | ..... | 63,990 | 12,187 |
| 1941 | ..... | 19,148 | 374,905 | 3,256 | ..... | 10,053 | 1,522 | 111,121 | 69,067 | 403,855 | ..... | 13,916 | 4,268 | 196 | 28,499 | ..... | 64,655 | 10,456 |
| 1942 | ..... | 19,456 | 403,968 | 4,865 | ..... | 14,484 | 1,599 | 112,921 | 80,089 | 447,686 | ..... | 15,521 | 2,082 | 100 | 31,475 | ..... | 78,164 | 8,718 |
| 1943 | ..... | 36,469 | 457,757 | 6,445 | ..... | 18,120 | 1,450 | 133,729 | 92,364 | 505,294 | ..... | 18,006 | 1,461 | 124 | 31,562 | ..... | 86,500 | 8,062 |
| 1944 | ..... | 46,453 | 502,017 | 5,141 | 6 | 18,137 | 1,014 | 157,733 | 94,223 | 534,688 | ..... | 19,653 | 1,352 | 159 | 32,102 | ..... | 87,727 | 7,052 |
| 1945 | ..... | 46,600 | 502,442 | 4,914 | 6 | 16,663 | 1,543 | 145,959 | 81,714 | 542,789 | ..... | 21,874 | 4,587 | 90 | 31,829 | ..... | 105,023 | 9,210 |
| 1946 | ..... | 45,177 | 487,904 | 6,728 | 6 | 17,166 | 1,094 | 165,725 | 70,396 | 525,178 | ..... | 20,879 | 7,225 | 40 | 30,413 | ..... | 119,262 | 5,084 |
| †*1947* | ..... | *50,440* | *544,950* | *8,259* | ..... | *16,679* | *666* | *202 177* | *80,040* | *573,151* | ..... | *25,479* | *39,987* | *33* | *32,549* | ..... | *142,566* | *4,776* |
| ‡1947 | ..... | 50,630 | 560,510 | 8 392 | 8 | 17,023 | 877 | 209 231 | 96,459 | 581,398 | ..... | 18,812 | 40,037 | 38 | 34,282 | ..... | 142,740 | 4,600 |
| 1948 | ..... | 53,946 | 570,954 | 8,967 | 27 | 14,062 | 553 | 245,189 | 70,095 | 686,061 | ..... | 14,981 | 59,899 | 27 | 36,551 | ..... | 194,749 | 4,705 |
| 1949 | ..... | 47,788 | 550,903 | 8,490 | 39 | 12,391 | 334 | 294,078 | 51,851 | 732,845 | ..... | 14,753 | 68,662 | 24 | 35,291 | ..... | 204,961 | 3,693 |
| 1950 | 2 | 48,047 | 558,398 | 11,168 | ..... | 13,285 | 956 | 364,024 | 73,316 | 831,771 | 373 | 11,250 | 114,153 | 21 | 39,186 | 17 | 212,909 | 3,336 |
| 1951 | 1 | 44,656 | 566,751 | 14,128 | 10 | 11,425 | 845 | 417,538 | 76,097 | 1,054,199 | 3,422 | 11,194 | 158,845 | 14 | 36,424 | 3,895 | 300,169 | 3,214 |
| 1952 | 4 | 42,325 | 517,450 | 34,260 | 15 | 10,183 | 836 | 412,544 | 73,427 | 1,237,143 | 2,372 | 9,052 | 174,100 | 16 | 28,714 | 5,568 | 359,377 | 3,627 |
| 1953 | 41 | 41,510 | 531,346 | 28,509 | 34 | 9,282 | 701 | 420,607 | 71,405 | 1,293,644 | 1,408 | 7,774 | 154,254 | 15 | 27,889 | 6,748 | 399,086 | 2,437 |
| 1954 | 87 | 33,471 | 507,289 | 45,705 | 35 | 9,475 | 735 | 412,369 | 72,713 | 1,399,222 | 1,394 | 6,962 | 140,448 | 16 | 30,252 | 6,801 | 449,346 | 2,598 |
| *1955 | 70 | 35,141 | 513,900 | 57,585 | 93 | 10,302 | 798 | 438,500 | 74,100 | 1,540,200 | 1,860 | 7,300 | 160,400 | 21 | 30,000 | 9,193 | 522,400 | 2,000 |
| Total | 205 | 999,308 | 12,988,223 | 287,870 | 279 | 325,763 | 567,773 | 5,690,947 | 1,734,633 | 16,921,071 | 10,829 | 278,767 | 1,192,422 | 11,440 | 716,435 | 32,222 | 3,705,754 | 434,414 |

* Estimate. † Old basis, as in prior years; excludes gas stored and lost in transmission; not included below in totals. ‡ New basis, as in subsequent years; includes gas stored and lost in transmission; included below in totals.

| YEAR | North Dakota | Ohio | Oklahoma | Pennsylvania | South Dakota | Tennessee | Texas | Utah | Virginia | Washington | West Virginia | Wyoming | Others | Total United States | Value at Wells | | Cost to Users | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | $1,000 | ¢ Mcf. | $1,000 | ¢ Mcf. |
| *Pre-1906 | ..... | 305,593 | 2,215 | 1,611,066 | ..... | *1 | 815 | *150 | ..... | ..... | 387,799 | 506 | 42,517 | **2,961,781** | ..... | ..... | 426,448 | 14.4 |
| 1906 | ..... | 45,436 | 3,520 | 138,161 | 23 | 2 | *1,000 | ..... | ..... | ..... | 119,400 | *100 | ..... | **388,843** | ..... | ..... | 46,874 | 12.1 |
| 1907 | 2 | 52,041 | 4,867 | 135,516 | 37 | 2 | *1,200 | ..... | ..... | ..... | 122,687 | *140 | ..... | **406,622** | ..... | ..... | 54,222 | 13.3 |
| 1908 | 10 | 47,442 | 11,925 | 130,476 | 36 | 2 | *1,500 | ..... | ..... | ..... | 112,181 | *180 | ..... | **402,141** | ..... | ..... | 54,640 | 13.6 |
| 1909 | 8 | 53,223 | 28,037 | 127,697 | 23 | 2 | *3,000 | ..... | ..... | ..... | 166,435 | *220 | ..... | **480,706** | ..... | ..... | 63,207 | 13.1 |
| 1910 | 19 | 48,232 | 50,430 | 126,867 | 43 | 1 | *4,000 | ..... | ..... | ..... | 190,706 | *253 | ..... | **509,155** | ..... | ..... | 70,756 | 13.9 |
| 1911 | 13 | 49,450 | 67,276 | 108,869 | 26 | 1 | 5,503 | ..... | ..... | ..... | 206,891 | *265 | ..... | **512,993** | ..... | ..... | 74,622 | 14.5 |
| 1912 | *18 | 56,210 | 73,799 | 112,150 | *36 | 2 | 7,470 | ..... | ..... | ..... | 239,007 | *247 | ..... | **562,203** | ..... | ..... | 84,564 | 15.0 |
| 1913 | *22 | 50,612 | 75,018 | 118,860 | *45 | 2 | 12,160 | ..... | ..... | ..... | 245,454 | *273 | ..... | **581,898** | ..... | ..... | 87,847 | 15.1 |
| 1914 | *20 | 68,270 | 78,167 | 110,745 | *41 | 1 | 13,434 | ..... | ..... | ..... | 236,489 | *306 | ..... | **591,867** | ..... | ..... | 94,116 | 15.9 |
| 1915 | *36 | 79,510 | 87,517 | 113,692 | *53 | 2 | 13,324 | ..... | ..... | ..... | 244,004 | *321 | ..... | **628,579** | ..... | ..... | 101,312 | 16.1 |
| 1916 | *35 | 69,888 | 123,517 | 130,484 | *43 | 2 | 15,810 | ..... | ..... | ..... | 299,319 | *557 | ..... | **753,170** | ..... | ..... | 120,227 | 16.0 |
| 1917 | *27 | 68,917 | 137,384 | 133,397 | *33 | 11 | 17,047 | ..... | ..... | ..... | 308,617 | *1,209 | ..... | **795,110** | ..... | ..... | 142,089 | 17.9 |
| 1918 | 35 | 61,261 | 124,317 | 123,813 | 42 | 1,827 | 13,440 | ..... | ..... | ..... | 265,161 | 4,339 | ..... | **721,001** | ..... | ..... | 153,554 | 21.3 |
| 1919 | 2 | 63,154 | 163,649 | 113,489 | 33 | 77 | 24,710 | ..... | ..... | ..... | 234,095 | 6,014 | ..... | **745,916** | ..... | ..... | 160,888 | 21.6 |
| 1920 | 1 | 58,938 | 154,467 | 125,787 | 20 | 15 | 37,063 | ..... | ..... | ..... | 239,719 | 16,312 | ..... | **798,210** | ..... | ..... | 196,194 | 24.6 |
| 1921 | 1 | 47,412 | 124,058 | 86,144 | 10 | 11 | 44,504 | ..... | ..... | ..... | 174,921 | 15,608 | ..... | **662,052** | ..... | ..... | 174,617 | 26.4 |
| 1922 | 1 | 51,481 | 140,631 | 101,276 | 15 | 3 | 47,945 | ..... | ..... | ..... | 195,288 | 23,427 | ..... | **762,546** | 84,873 | 11.1 | 221,535 | 29.1 |
| 1923 | ..... | 53,812 | 203,082 | 112,562 | 33 | 4 | 74,535 | ..... | ..... | ..... | 203,867 | 35,523 | 97 | **1,006,976** | 100,849 | 10.0 | 240,001 | 23.8 |
| 1924 | ..... | 47,396 | 214,452 | 105,863 | 3 | 1 | 107,247 | ..... | ..... | ..... | 182,285 | 46,036 | 73 | **1,141,521** | 105,779 | 9.3 | 253,856 | 22.2 |
| 1925 | ..... | 43,235 | 249,285 | 101,632 | 4 | 9 | 134,872 | ..... | ..... | ..... | 180,345 | 45,539 | 28 | **1,188,571** | 112,047 | 9.4 | 265,271 | 22.3 |
| 1926 | ..... | 47,363 | 286,421 | 107,089 | 10 | 11 | 175,392 | ..... | ..... | ..... | 180,223 | 46,567 | 38 | **1,313,019** | 124,693 | 9.5 | 300,168 | 22.9 |
| 1927 | ..... | 51,381 | 326,864 | 105,709 | 92 | 9 | 254,063 | 927 | ..... | ..... | 162,375 | 43,582 | 27 | **1,445,428** | 127,468 | 8.8 | 317,930 | 22.0 |
| 1928 | ..... | 56,341 | 320,861 | 99,466 | 54 | ..... | 301,990 | 1,105 | ..... | ..... | 163,018 | 47,490 | 76 | **1,568,139** | 139,898 | 8.9 | 363,726 | 23.2 |
| 1929 | ..... | 57,936 | 357,893 | 101,951 | 99 | 25 | 464,928 | 693 | ..... | ..... | 167,333 | 44,648 | 28 | **1,917,693** | 157,596 | 8.2 | 413,276 | 21.6 |
| 1930 | ..... | 63,394 | 348,116 | 88,706 | 98 | 24 | 517,880 | 393 | ..... | ..... | 144,180 | 43,219 | 125 | **1,943,421** | 147,048 | 7.6 | 416,090 | 21.4 |
| 1931 | ..... | 56,326 | 263,685 | 74,797 | 12 | 25 | 464,580 | 219 | ..... | ..... | 124,797 | 39,770 | ..... | **1,686,436** | 117,505 | 7.0 | 392,816 | 23.3 |
| 1932 | ..... | 51,466 | 255,487 | 61,611 | 10 | 22 | 456,832 | 184 | ..... | ..... | 100,540 | 28,938 | ..... | **1,555,990** | 98,985 | 6.4 | 384,632 | 24.7 |
| 1933 | ..... | 47,929 | 245,759 | 63,579 | 10 | 48 | 475,691 | 48 | ..... | 111 | 100,653 | 25,830 | ‡ 19 | **1,555,474** | 97,096 | 6.2 | 368,540 | 23.7 |
| 1934 | ..... | 50,330 | 254,457 | 86,238 | 11 | 12 | 602,976 | 182 | ..... | 104 | 109,161 | 23,148 | ..... | **1,770,721** | 106,438 | 6.0 | 395,378 | 22.3 |
| 1935 | ..... | 49,592 | 274,313 | 94,464 | 8 | ..... | 642,366 | 98 | ..... | 138 | 115,772 | 26,643 | ..... | **1,916,595** | 110,402 | 5.8 | 329,374 | 22.4 |
| 1936 | ..... | 46,994 | 280,481 | 110,362 | 9 | 84 | 734,561 | 92 | ..... | 141 | 138,076 | 29,322 | ..... | **2,167,802** | 119,193 | 5.5 | 476,813 | 22.0 |
| 1937 | ..... | 42,783 | 296,260 | 115,928 | 10 | 17 | 854,561 | 2,366 | ..... | 143 | 149,084 | 31,023 | ..... | **2,407,620** | 123,457 | 5.1 | 528,354 | 21.9 |
| 1938 | 71 | 35,257 | 263,164 | 76,547 | 10 | 6 | 882,473 | 4,277 | ..... | 117 | 134,342 | 26,678 | ..... | **2,295,562** | 113,571 | 4.9 | 500,698 | 21.8 |
| 1939 | 76 | 36,469 | 250,875 | 93,882 | 10 | 8 | 979,427 | 4,854 | 60 | 63 | 159,226 | 26,614 | ..... | **2,476,756** | 120,243 | 4.9 | 534,240 | 21.6 |
| 1940 | ..... | 40,639 | 257,626 | 90,725 | 9 | 9 | 1,063,538 | 5,124 | 80 | 36 | 188,751 | 27,346 | ..... | **2,660,222** | 120,493 | 4.5 | 577,939 | 21.7 |
| 1941 | 47 | 41,858 | 234,054 | 92,819 | 7 | 10 | 1,086,312 | 5,567 | 106 | 1 | 207,681 | 29,284 | ..... | **2,812,658** | 138,508 | 4.9 | 621,333 | 22.1 |
| 1942 | 122 | 45,055 | 269,704 | 93,532 | 7 | 10 | 1,170,345 | 5,163 | 92 | ..... | 215,193 | 33,124 | ..... | **3,053,475** | 154,236 | 5.1 | 692,737 | 22.7 |
| 1943 | 177 | 52,001 | 285,045 | 93,543 | 6 | 10 | 1,323,885 | 4,464 | 77 | ..... | 223,787 | 34,351 | ..... | **3,414,689** | 176,893 | 5.2 | 760,950 | 22.3 |
| 1944 | 200 | 51,724 | 310,888 | 92,987 | 5 | 10 | 1,525,515 | 6,223 | 57 | ..... | 181,452 | 34,521 | ..... | **3,711,039** | 189,809 | 5.1 | 794,271 | 21.5 |
| 1945 | 217 | 49,967 | 357,530 | 82,188 | 5 | 10 | 1,711,401 | 6,562 | 56 | ..... | 160,225 | 35,282 | ..... | **3,918,686** | 191,006 | 4.9 | 834,195 | 21.4 |
| 1946 | 344 | 61,570 | 380,938 | 92,443 | 5 | 47 | 1,776,148 | 4,252 | 57 | ..... | 178,958 | 33,266 | ..... | **4,030,605** | 212,251 | 5.3 | 882,356 | 22.0 |
| †*1947* | ..... | *73,989* | *393,216* | *94,252* | ..... | *80* | *1,932,857* | ..... | ..... | ..... | *182,072* | *40,083* | *6,392* | *4,444,693* | *266,682* | *6.0* | *1,031,169* | *23.2* |
| ‡1947 | 442 | 68,946 | 419,010 | 91,971 | 6 | 80 | 1,992,704 | 6,040 | 64 | ..... | 192,233 | 45,550 | ..... | **4,582,173** | 274,709 | 6.0 | 1,028,318 | 23.2 |
| 1948 | 643 | 65,619 | 480,573 | 87,578 | 2 | 127 | 2,289,923 | 6,610 | 74 | ..... | 203,681 | 52,424 | ..... | **5,148,020** | 333,173 | 6.5 | 1,193,559 | 24.1 |
| 1949 | 533 | 46,512 | 435,262 | 84,739 | 1 | 83 | 2,588,921 | 6,126 | 65 | ..... | 181,176 | 50,815 | ..... | **5,419,736** | 341,443 | 6.3 | 1,320,589 | 25.4 |
| 1950 | ..... | 43,163 | 482,360 | 91,137 | ..... | 132 | 3,126,402 | ..... | ..... | ..... | 189,980 | 62,062 | 4,612 | **6,282,060** | 408,776 | 6.5 | 1,604,041 | 26.5 |
| 1951 | •463 | 38,879 | 538,756 | 128,715 | • | 132 | 3,781,136 | ɪ | 64 | ..... | 191,146 | ɪ75,241 | ..... | **7,457,359** | 542,964 | 7.3 | 2,118,675 | 29.8 |
| 1952 | 369 | 30,993 | 554,033 | 108,684 | 6 | 107 | 4,147,805 | 3,006 | 1,133 | ..... | 180,995 | 75,313 | ..... | **8,013,457** | 623,649 | 7.8 | 2,527,319 | 33.2 |
| 1953 | •503 | 37,542 | 599,955 | 105,558 | • | 89 | 4,383,158 | 7,075 | 3,697 | ..... | 186,477 | 76,262 | ..... | **8,396,916** | 775,000 | 9.2 | 2,834,215 | 35.5 |
| 1954 | •1,100 | 28,824 | 616,355 | 145,934 | • | 89 | 4,551,232 | 16,024 | 1,401 | ..... | 191,601 | 71,068 | ..... | **8,742,546** | 883,000 | 10.1 | 3,204,696 | 38.0 |
| *1955 | •1,496 | 43,800 | 669,400 | 132,000 | • | 89 | 4,801,900 | 22,685 | 4,247 | ..... | 201,300 | 94,230 | ..... | **9,375,000** | 1,003,000 | 10.7 | 3,701,000 | 40.4 |
| Total | 7,043 | 2,862,166 | 13,033,738 | 6,863,428 | 1,101 | 3,303 | 49,708,624 | 120,504 | 11,330 | 854 | 9,578,086 | 1,504,986 | 47,640 | **129,641,158** | § | § | 33,505,068 | 25.8 |

* Estimate. † Old basis, as in prior years; excludes gas stored and lost in transmission; not included below in totals. ‡ New basis, as in subsequent years; includes gas stored and lost in transmission; included below in totals. § Not available. ɪ Wyoming includes Utah. • North Dakota includes South Dakota. ‡ Others in 1933: Alaska.

## U. S. Production and Consumption of Natural Gas, by Years, Part 1, 1936-1945

(Source: U. S. Bureau of Mines, except as noted.)

UNITS EXPLAINED IN FOOTNOTE NO. 1

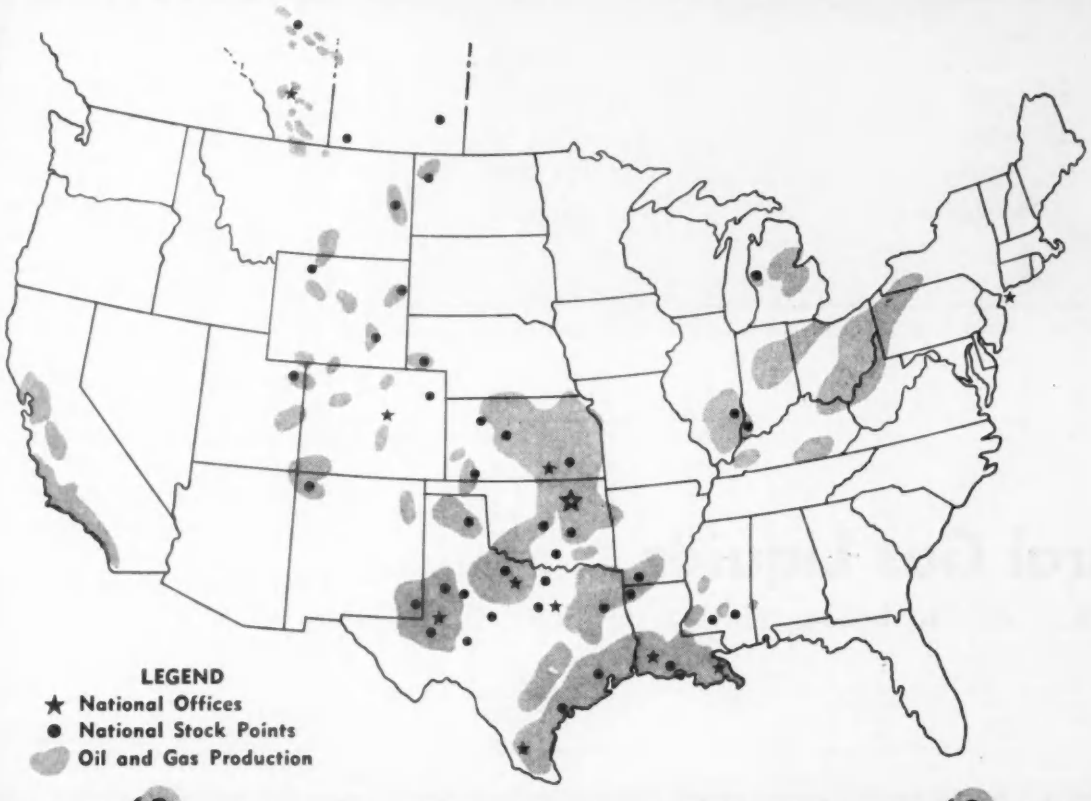
| CLASSIFICATION[1] | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Production** | | | | | | | | | | |
| Wells: Gas wells drilled (Incl. Condensate wells) | 2,255 | 2,834 | 2,236 | 2,145 | 2,382 | 2,911 | 2,597 | 2,290 | 3,069 | 3,227 |
| Producing gas wells, Dec. 31 (Incl. Condensate wells) | 54,500 | 55,050 | 53,770 | 53,530 | 53,880 | 55,500 | 56,150 | 57,200 | 58,780 | 60,000 |
| Production: Gross Production | 2,644,835 | 3,032,410 | 3,061,200 | 3,333,500 | 3,694,100 | 4,103,500 | 4,453,900 | 4,942,560 | 5,614,220 | 5,902,189 |
| Source: (1). From gas wells | 1,483,595 | 1,612,580 | 1,566,975 | 1,832,880 | 2,095,180 | 2,490,590 | 2,885,090 | 3,208,780 | 3,649,830 | 3,887,727 |
| (2). From oil wells | 1,161,240 | 1,419,830 | 1,494,225 | 1,500,680 | 1,598,920 | 1,612,910 | 1,568,810 | 1,733,780 | 1,964,390 | 2,014,462 |
| Disposition: (1). Repressuring | 73,507 | 84,925 | 101,551 | 171,401 | 362,916 | 644,379 | 752,619 | 824,803 | 882,979 | 1,061,951 |
| (2). Vented and wasted | 392,528 | 526,159 | 649,106 | 677,311 | 655,967 | 630,212 | 626,782 | 684,115 | 1,010,285 | 896,206 |
| (3). Marketed production | 2,167,802 | 2,407,620 | 2,295,562 | 2,476,756 | 2,660,222 | 2,812,658 | 3,053,475 | 3,414,689 | 3,711,039 | 3,918,686 |
| Value at wells | 119,193 | 123,457 | 113,571 | 120,243 | 120,493 | 138,508 | 154,236 | 176,893 | 189,809 | 191,006 |
| Average value at wells | 5.5 | 5.1 | 4.9 | 4.9 | 4.5 | 4.9 | 5.1 | 5.2 | 5.1 | 4.9 |
| Underground storage: Net stored | 10,998 | 13,706 | 14,981 | 8,032 | 14,995 | 16,251 | 21,024 | 18,953 | 9,917 | 25,335 |
| Total stored | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Total withdrawn | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Interstate shipments[3] | 574,343 | 687,428 | 636,626 | 689,795 | 738,844 | 815,672 | 916,969 | 990,457 | 1,029,758 | 1,105,700 |
| Imports | 152 | 289 | 372 | 131 | ..... | ..... | ..... | ..... | ..... | ..... |
| Exports | 7,436 | 4,868 | 1,837 | 3 122 | 5,563 | 7,466 | 8,702 | 11,210 | 14,576 | 18,207 |
| Treated at natural gasoline plants | 1,815,000 | 2,108,800 | 2,035,562 | 2,150,000 | 2,471,400 | 2,763,300 | 2,864,400 | 3,028,000 | 3,300,000 | 3,653,870 |
| **Consumption** | | | | | | | | | | |
| Residential: Volume Consumed | 343,346 | 371,844 | 367,772 | 391,153 | 443,646 | 442,067 | 498,537 | 529,444 | 562,183 | 607,400 |
| Number of consumers | 8,017,390 | 8,348,390 | 8,633,970 | 8,887,460 | 9,245,230 | 9,730,110 | 10,134,770 | 10,353,870 | 10,668,400 | 10,959,040 |
| Value at point of consumption | 251,617 | 273,577 | 273,070 | 287,600 | 315,515 | 318,093 | 352,520 | 370,558 | 388,359 | 415,122 |
| Average value at point of consumption | 73.3 | 73 6 | 74.2 | 73.5 | 71.1 | 72.0 | 70.7 | 70.0 | 69.1 | 68.3 |
| Commercial: Volume consumed | 111,623 | 117,390 | 114,296 | 118,334 | 134,644 | 144,844 | 183,603 | 204,793 | 220,747 | 230,099 |
| Number of consumers | 656,720 | 679,790 | 704,240 | 715,390 | 741,020 | 766,910 | 778,830 | 811,090 | 845,220 | 885,660 |
| Value at point of consumption | 53,693 | 57,161 | 56,247 | 58,494 | 64,399 | 68,398 | 80,189 | 87,648 | 92,137 | 97,572 |
| Average value at point of consumption | 48.1 | 48.7 | 49.2 | 49.4 | 47.8 | 47.2 | 43.7 | 42.8 | 41.7 | 42.4 |
| Industrial: Volume consumed, Total | 1,705,349 | 1,913,807 | 1,812,029 | 1,964,278 | 2,076,369 | 2,218,281 | 2,362,633 | 2,669,242 | 2,913,533 | 3,062,980 |
| Field | 618,468 | 651,320 | 659,203 | 680,884 | 711,861 | 686,158 | 721,063 | 780,986 | 855,180 | 916,952 |
| Carbon Black | 283,421 | 341,085 | 324,950 | 347,270 | 368,802 | 365,377 | 335,533 | 315,562 | 355,770 | 431,830 |
| Other industrial[4] | 803,660 | 921,402 | 827,876 | 936,124 | 995,706 | 1,166,746 | 1,306,037 | 1,572,694 | 1,702,583 | 1,714,198 |
| Petroleum refineries | 93,183 | 113,005 | 109,741 | 97,685 | 128,007 | 148,127 | 201,670 | 243,584 | 315,311 | 338,458 |
| Portland cement plants | 36,923 | 40.450 | 37,496 | 40,212 | 41,949 | 54,208 | 64,540 | 51,748 | 35,588 | 38,349 |
| Electric utility plants | 176,080 | 170,567 | 169,988 | 191,131 | 183,156 | 205,156 | 238,736 | 305,576 | 359,745 | 326,190 |
| Value at point of consumption, Total Industrial | 170,129 | 196,791 | 171,233 | 187,627 | 197,090 | 233,547 | 258,458 | 300,731 | 313,775 | 321,501 |
| Field | 28,397 | 31,199 | 29,628 | 28,610 | 27,158 | 29,993 | 30,587 | 33,288 | 36,868 | 40,090 |
| Carbon Black | 3,681 | 4,294 | 2,892 | 3,263 | 3,702 | 4,135 | 4.338 | 4,624 | 5,763 | 9,854 |
| Other industrial | 138,051 | 161,298 | 138,713 | 155,754 | 166,230 | 199,419 | 223,533 | 262,819 | 271,144 | 271,557 |
| Avge. value at point of consumption, Total Ind | 10.0 | 10.3 | 9.4 | 9.6 | 9.5 | 10.5 | 10.9 | 11.3 | 10.8 | 10.5 |
| Field | 4.6 | 4.8 | 4.5 | 4.2 | 3.8 | 4.4 | 4.2 | 4.3 | 4.3 | 4.4 |
| Carbon Black | 1.3 | 1.3 | 0.9 | 0 9 | 1.0 | 1.1 | 1.3 | 1.5 | 1 6 | 2.3 |
| Other industrial | 17.2 | 17.5 | 16.8 | 16.6 | 16.7 | 17.1 | 17.1 | 16.7 | 15.9 | 15.8 |
| Total Consumption: Volume consumed | 2,160,518 | 2,403,041 | 2,294,097 | 2,473,765 | 2,654,659 | 2,805,192 | 3,044,773 | 3,403,470 | 3,696,463 | 3,900,479 |
| Value at point of consumption | 475,439 | 527,529 | 500,550 | 533,721 | 577,004 | 620,038 | 691,167 | 758,937 | 794,271 | 834,195 |
| Average value at point of consumption | 22.0 | 22.0 | 21.8 | 21.6 | 21.7 | 22.1 | 22.7 | 22.3 | 21 5 | 21.4 |

## U. S. Production and Consumption of Natural Gas, by Years, Part 2, 1946 to Now

| CLASSIFICATION[1] | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Production** | | | | | | | | | | |
| Wells: Gas wells drilled (Incl. Condensate wells) | 3,000 | 3,235 | 2,897 | 2,887 | 2,843 | 3,030 | 3,255 | 3,806 | [6]4,219 | [6]4,266 |
| Producing gas wells, Dec. 31 (Incl. Condensate wells) | 62,740 | 63,676 | 64,212 | 63,346 | 64,900 | 65,100 | 65,450 | 68,223 | [6]72,195 | [6]73,802 |
| Production: Gross Production | 6,190,200 | 6,733,230 | 7,178,777 | 7,546,825 | 8,479,650 | 9,689,372 | 10,272,566 | 10,645,798 | 10,984,850 | 11,625,000 |
| Source: (1). From gas wells | 3,807,500 | 3,769,768 | 4,588,547 | 4,986,126 | 5,603,200 | 6,481,452 | 6,839,177 | 7,095,237 | 7,466,007 | 7,867,000 |
| (2). From oil wells | 2,382,700 | 2,963,462 | 2,590,230 | 2,560,699 | 2,876,450 | 3,207,920 | 3,433,389 | 3,550,561 | 3,518,843 | 3,758,000 |
| Disposition: (1). Repressuring | 1,038,242 | 1,083,119 | 1,220,579 | 1,273,205 | 1,396,546 | 1,438,827 | 1,410,501 | 1,438,606 | 1,518,737 | 1,550,000 |
| (2). Vented and wasted | 1,102,033 | 1,067,938 | 1,810,178 | 853,884 | 801,044 | 793,186 | 848,608 | 810,276 | 723,567 | 700,000 |
| (3). Marketed production | 4,030,605 | [2]4,582,173 | [2]5,148,020 | [2]5,419,736 | [2]6,282,060 | [2]7,457,359 | [2]8,013,457 | [2]8,396,916 | 8,742,616 | 9,375,000 |
| Value at wells | 212,251 | 274,709 | 333,173 | 344,034 | 408,521 | 542,964 | 623,649 | 774,966 | 883,000 | 1,003,000 |
| Average value at wells | 5.3 | 6.0 | 6.5 | 6.3 | 6.5 | 7.3 | 7.8 | 9.2 | 10.1 | 10.7 |
| Underground Storage: Net stored | 19,320 | 9,673 | 57,371 | 65,683 | 54,492 | 138,282 | 176,684 | 158,036 | 102,000 | 69,500 |
| Total stored | 75,458 | 96,316 | 136,406 | 172,051 | 229,752 | 347,690 | 398,593 | 404,838 | 432,000 | 504,600 |
| Total withdrawn | 56,138 | 86,643 | 79,035 | 106,368 | 175,260 | 209,428 | 221,909 | 246,802 | 330,000 | 280,600 |
| Interstate Shipments[3] | 1,145,901 | 1,402,157 | 1,756,629 | 2,007,878 | 2,543,538 | 3,242,777 | 3,794,542 | 4,200,793 | 4,661,898 | 5,363,700 |
| Imports | ..... | ..... | ..... | ..... | ..... | ..... | 7,807 | 9,225 | 6,847 | 7,500 |
| Exports | 17,675 | 18,149 | 18,704 | 20,054 | 25,727 | 24,163 | 27,456 | 28,322 | 28,726 | 28,700 |
| Treated at natural gasoline plants | 3,663,760 | 4,070,150 | 4,393,500 | 4,656,142 | 5,346,804 | 6,203,070 | 6,418,597 | 6,837,282 | 7,100,000 | 7,500,000 |
| **Consumption** | | | | | | | | | | |
| Residential: Volume consumed | 660,820 | 802,150 | 896,348 | 992,544 | 1,198,369 | 1,474,725 | 1,621,966 | 1,685,503 | 1,894,248 | 2,155,200 |
| Number of consumers | 11,471,640 | 12,203,700 | 13,508,010 | 14,689,750 | 16,905,680 | 21,443,950 | 22,569,270 | 24,186,000 | 25,327,000 | 26,300,000 |
| Value at point of consumption | 447,018 | 526,355 | 585,188 | 665,536 | 826,393 | 1,120,819 | 1,347,171 | 1,457,960 | 1,691,563 | 1,982,800 |
| Average value at point of consumption | 67.6 | 65.6 | 65.6 | 67.1 | 69.0 | 76.0 | 83.1 | 86.5 | 89,3 | 92.0 |
| Commercial: Volume consumed | 241,802 | 285,213 | 329,054 | 347,818 | 387,838 | 464,309 | 515,669 | 530,650 | 584,957 | 653,400 |
| Number of consumers | 964,990 | 1,039,680 | 1,145,060 | 1,231,055 | 1,347,203 | 1,613,708 | 1,854,931 | 2,042,000 | 2,076,000 | 2,100,000 |
| Value at point of consumption | 102,566 | 125,844 | 142,170 | 158,105 | 184,430 | 245,609 | 294,187 | 323,475 | 378,467 | 447,000 |
| Average value at point of consumption | 42.4 | 44.1 | 44.0 | 45.5 | 47.6 | 52.9 | 57.0 | 61.0 | 64.7 | 68.5 |
| Industrial: Volume consumed, Total | 3,110,308 | 3,339,181 | 3,725,747 | 3,855,122 | 4,440,197 | 5,163,528 | 5,475,843 | 5,763,185 | 5,928,902 | 6,353,100 |
| Field | 897,809 | 933,761 | 1,021,513 | 1,059,628 | 1,187,473 | 1,441,870 | 1,483,754 | 1,471,085 | 1,456,883 | 1,636,700 |
| Carbon Black | 478,349 | 484,882 | 480,646 | 427,892 | 410,852 | 426,423 | 368,399 | 300,942 | 251,176 | 237,600 |
| Other industrial[4] | 1,734,150 | 1,920,538 | 2,223,588 | 2,367,602 | 2,841,872 | 3,295,235 | 3,623,690 | 3,991,158 | 4,220,843 | 4,478,800 |
| Petroleum refineries | 331,520 | 363,892 | 441,470 | 422,357 | 455,096 | 537,774 | 536,402 | 558,695 | 563,315 | 595,000 |
| Portland cement plants | 58,004 | 60,499 | 72,139 | 84,521 | 96,986 | 102,508 | 111,479 | 115,039 | 120,000 | 125,000 |
| Electric utility plants | 306,924 | 373,037 | 478,097 | 550,121 | 628,919 | 763,898 | 910,117 | 1,034,272 | 1,165,498 | 1,300,000 |
| Value at point of consumption, Total Industrial | 332,772 | 376,119 | 466,201 | 496,948 | 593,218 | 752,247 | 885,961 | 1,047,558 | 1,134,666 | 1,270,600 |
| Field | 41,317 | 49,835 | 61,123 | 65,210 | 73,301 | 97,429 | 115,371 | 124,338 | 120,668 | 139,100 |
| Carbon Black | 14,470 | 17,316 | 22,723 | 20,355 | 19,677 | 22,213 | 20,108 | 17,668 | 15,070 | 14,700 |
| Other industrial | 276,985 | 308,968 | 382,355 | 411,383 | 500,240 | 632,564 | 750,482 | 905,562 | 998,928 | 1,116,800 |
| Avge. value at point of consumption, Total Ind. | 10.7 | 11.3 | 12.5 | 12.9 | 13.4 | 14.6 | 16.2 | 18.2 | 19.1 | 20.0 |
| Field | 4.6 | 5.3 | 6.0 | 6.2 | 6.2 | 6.8 | 7.6 | 8.5 | 8.3 | 8.5 |
| Carbon Black | 3.0 | 3.6 | 4.7 | 4.8 | 4.8 | 5.2 | 5.5 | 5.9 | 6.0 | 6.2 |
| Other industrial | 16.0 | 16.1 | 17.2 | 17.4 | 17.6 | 19.2 | 20.7 | 22.7 | 23.7 | 24.9 |
| Total Consumption: Volume consumed | 4,012,930 | 4,426,544 | 4,945,149 | 5,195,484 | 6,026,404 | 7,102,562 | 7,613,478 | 7,979,338 | 8,408,107 | 9,161,700 |
| Value at point of consumption | 882,356 | 1,028,318 | 1,193,559 | 1,320,589 | 1,604,041 | 2,118,675 | 2,527,319 | 2,834,215 | 3,204,696 | 3,701,000 |
| Avge. value at point of consumption | 22.0 | 23.2 | 24.1 | 25.4 | 26.6 | 29.8 | 33.2 | 35.5 | 38.1 | 40.4 |

[1] Units—Volume: million cubic feet. No. of consumers: actual. Value: thousand dollars. Average Value: cents per Mcf.
[2] Includes gas stored and lost in transmission.
[3] Includes exports.
[4] Petroleum refineries, portland cement plants, and electric utility plants included in "Other Industrial."
[5] Estimated with aid of reports of Bureau of Mines and American Gas Association.
[6] WORLD OIL statistics.

# wherever there's oil...there's NATIONAL




## NATIONAL TANK DIRECTORY

**MANUFACTURING POINTS:** Tulsa, Oklahoma: Bolted, Welded and Wood Tanks, and Welded Vessels.
Electra, Texas: Welded Tanks.

Abilene, Tex.
Ardmore, Okla.
Brookhaven, Miss.
Brush, Colo.
Casper, Wyo.
Clay City, Ill.
Cody, Wyo.
Corpus Christi, Tex.
Dallas, Tex.
Denver, Colo.
Eldorado, Kan.
Electra, Tex.
Farmington, N. M.
Fort Worth, Tex.
Great Bend, Kan.
Harvey, La.
Hays, Kan.
Hobbs, N. M.
Houston, Tex.
Lake Charles, La.
Laurel, Miss.
Liberal, Kan.
Longview, Tex.
Lubbock, Tex.
Magnolia, Ark.
Midland, Tex.
Mt. Pleasant, Mich.
Natchez, Miss.
New Harmony, Ind.
New Iberia, La.
Odessa, Tex.
Oklahoma City, Okla.
Pampa, Tex.
Pawhuska, Okla.
San Angelo, Tex.
Seminole, Okla.
Shreveport, La.
Sidney, Neb.
Vernal, Utah
Whitesboro, Tex.
Wichita, Kan.
Wichita Falls, Tex.
Williston, N. D.

CANADIAN SUBSIDIARY:
Calgary, Alberta, Ca.
Edmonton, Alberta, Ca.
Estevan, Saskatchewan, Ca.
Regina, Saskatchewan, Ca.
Virden, Manitoba, Ca.

**EXPORT AGENT:** National Supply Company, Export Division
**CALIFORNIA:** thru American Pipe & Steel Corp.

## NATIONAL TANK PRODUCTS

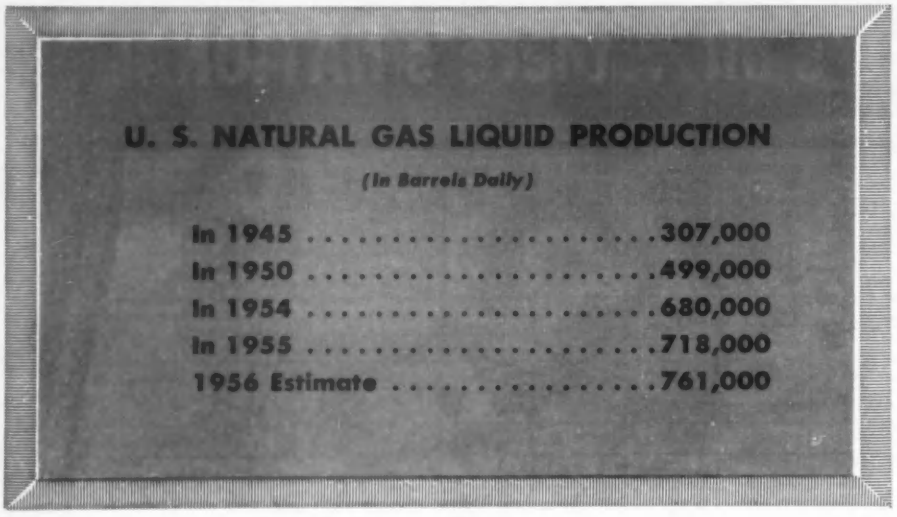
ABSORBERS • ACCUMULATORS • ADSORBERS • CHEMICAL PUMPS • DEHYDRATION UNITS, GAS • DEHYDRATION UNITS, LPG PRODUCTS • FLUID BOOSTERS • GASOLINE PLANT EQUIPMENT • HEATERS • LIQUID LEVEL CONTROLLERS, HIGH PRESSURE AND LOW PRESSURE • LOW TEMPERATURE EXTRACTION UNITS (LTX) • LOW TEMPERATURE EXTRACTION SYSTEMS • LOW TEMPERATURE GLYCOL (LTG) SYSTEMS • MECHANICAL REFRIGERATION TYPE HYDROCARBON RECOVERY SYSTEMS • PACKAGE TYPE GASOLINE PLANTS • RACKS — TANK CAR LOADING • SALT WATER DISPOSAL EQUIPMENT AND SYSTEMS • SCRUBBERS, WET AND DRY TYPES • SEPARATORS • SEPARATOR TOWERS • STABILIZING DESORBER UNITS • STAIRWAYS • TANKS • TITE-LINE COUPLINGS • TREATERS • VACUUM TRAPS • VALVES • VESSELS • WALKWAY • WATER FLOODING EQUIPMENT • WATER FILTERS • WATER KNOCKOUTS

DISTRIBUTORS OF ARMCO CASING

NATIONAL TANK COMPANY

TULSA, OKLAHOMA

It's a National




# Natural Gas Liquids . . . Increased demand due to bolster market position.

A FURTHER INCREASE in demand during 1956—aided considerably by the continued spectacular growth of LPG sales—should help improve the relatively weak market position that natural gas liquids have held the past two years.

Over-production, excessive stocks and resultant unstable prices characterized the industry in 1954 and the beginning of 1955. As the year progressed, demand increased steadily. However, production continued strong, showing an increase over 1954 —and there was another substantial increase in stocks (up 16.1 percent or 2,250,000 barrels). Result: The average value of natural gas liquids remained about the same as 1954.

**For all natural** gas liquids combined, the average price at the plant in 1955 was about 5.4 cents per gallon. This is the lowest the price has been since the 5.3 cents of 1947.

Production of LPG jumped 7.4 percent to 130 million barrels in 1955, and the value dropped slightly below the 1954 level. The value of natural gasoline improved only slightly over 1954, when the price slipped almost one cent below the 7.6 cent price of 1953. Natural gasoline production increased 3.6 percent to 131 million barrels.

U. S. production of natural gas liquids will average 761,000 barrels per day in 1956, the Bureau of Mines forecasts. That would be 43,000 barrels or 6 percent above 1955. The output of 718,000 barrels daily in 1955 was 4.8 percent above 1954.

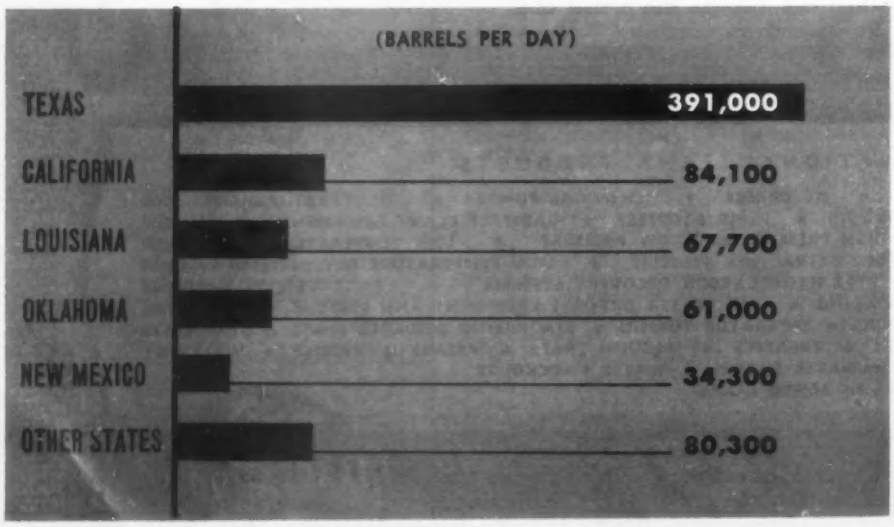
**Total annual production** of natural gas liquids in 1955 was about 262 million barrels, including natural gasoline, liquefied petroleum gas and allied products.

The five leading natural gas liquids producing states all showed increases except California, where a slight decrease of 6000 barrels was reported.

Texas, the No. 1 producing state, averaged 391,000 barrels per day in 1955, an increase of 21,000 barrels or 5.7 percent over 1954. This compares to a 1.5 percent increase in 1954.

The other leading states—Louisiana, Oklahoma and New Mexico—reported substantial gains.

## WHERE U. S. NATURAL GAS LIQUIDS WERE PRODUCED IN 1955




**U. S. Production of Natural Gas Liquids**
(Source: Bureau of Mines except Nov.-Dec., 1955, estimated. New series beginning 1941 includes cycle condensate.)
(THOUSANDS OF BARRELS)

| Year | Total | Daily | Year | Total | Daily |
|---|---|---|---|---|---|
| | | | 1936.. | 42,770 | 117 |
| Natural | Gasoline | | 1937.. | 49,177 | 135 |
| 1918... | 6,727 | 18 | 1938.. | 51,347 | 141 |
| 1919... | 8,370 | 23 | 1939.. | 51,650 | 142 |
| 1920... | 9,161 | 25 | 1940.. | 55,700 | 152 |
| | | | Natural Gas Liquids | | |
| 1921... | 10,713 | 29 | 1941.. | 80,855 | 222 |
| 1922... | 12,044 | 33 | 1942.. | 83,222 | 228 |
| 1923... | 19,434 | 53 | 1943.. | 87,716 | 240 |
| 1924... | 22,235 | 61 | 1944.. | 100,046 | 273 |
| 1925... | 26,845 | 74 | 1945.. | 112,004 | 307 |
| 1926... | 32,455 | 89 | 1946.. | 115,739 | 317 |
| 1927... | 39,075 | 107 | 1947.. | 132,173 | 362 |
| 1928... | 43,191 | 118 | 1948.. | 146,721 | 401 |
| 1929... | 53,183 | 146 | 1949.. | 157,086 | 430 |
| 1930... | 52,631 | 144 | 1950.. | 181,961 | 499 |
| 1931... | 43,617 | 119 | 1951.. | 204,754 | 561 |
| 1932... | 36,281 | 99 | 1952.. | 223,515 | 611 |
| 1933... | 33,810 | 93 | 1953.. | 241,890 | 663 |
| 1934... | 36,556 | 100 | 1954.. | 248,137 | 680 |
| 1935... | 39,333 | 108 | 1955.. | 262,237 | 718 |
| | | | 1956 Est .. | 278,693 | 761 |

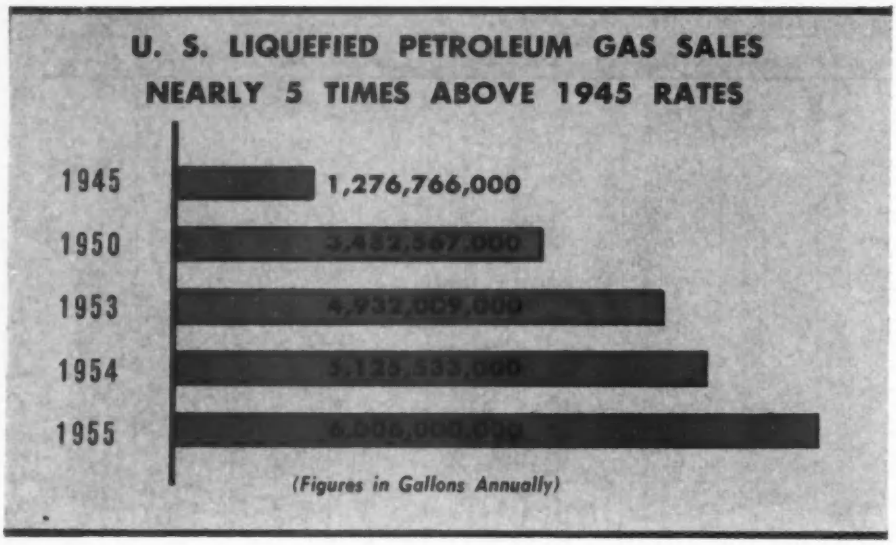
## Production of Natural Gas Liquids, by States, by Years

(Natural Gasoline, Cycle Products, and Liquefied Petroleum Gases. Source: Bureau of Mines. Data in Thousands of Barrels.)

| YEAR | Arkansas | California | Colorado | Illinois | Kansas | Kentucky | Louisiana | Michigan | Mississippi | Montana | New Mexico |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Natural Gasoline:** | | | | | | | | | | | |
| 1911 | ..... | 1 | ..... | 4 | ..... | ..... | ..... | .... | .... | .... | .... |
| 1912 | ..... | 25 | ..... | 7 | ..... | ..... | ..... | .... | .... | .... | .... |
| 1913 | ..... | 82 | ..... | 14 | ..... | ..... | ..... | .... | .... | .... | .... |
| 1914 | ..... | 180 | ..... | 28 | ..... | ..... | ..... | .... | .... | .... | .... |
| 1915 | ..... | 306 | ..... | 25 | 1 | ..... | 5 | .... | .... | .... | .... |
| 1916 | ..... | 409 | ..... | 54 | 5 | 17 | 50 | .... | .... | .... | .... |
| 1917 | ..... | 686 | ..... | 117 | 28 | 91 | 119 | .... | .... | .... | .... |
| 1918 | ..... | 768 | ..... | 109 | 57 | 79 | 167 | .... | .... | .... | .... |
| 1919 | ..... | 962 | ..... | 144 | 78 | 122 | 240 | .... | .... | .... | .... |
| 1920 | ..... | 1,148 | ..... | 144 | 103 | 107 | 253 | .... | .... | .... | .... |
| 1921 | ..... | 1,386 | ..... | 179 | 85 | 101 | 365 | .... | .... | .... | .... |
| 1922 | 102 | 1,598 | ..... | 185 | 68 | 124 | 700 | .... | .... | .... | .... |
| 1923 | 385 | 4,127 | ..... | 175 | 209 | 181 | 969 | .... | .... | .... | .... |
| 1924 | 418 | 5,538 | ..... | 216 | 278 | 173 | 1,145 | .... | .... | .... | .... |
| 1925 | 469 | 7,219 | 1 | 235 | 466 | 183 | 1,035 | .... | .... | .... | .... |
| 1926 | 723 | 9,271 | 7 | 238 | 604 | 183 | 1,037 | .... | .... | .... | 35 |
| 1927 | 893 | 11,858 | 22 | 211 | 859 | 178 | 1,068 | .... | .... | .... | 44 |
| 1928 | 778 | 13,907 | 45 | 186 | 875 | 173 | 1,310 | .... | .... | .... | 36 |
| 1929 | 796 | 20,008 | 39 | 169 | 863 | 143 | 1,547 | .... | .... | .... | 25 |
| 1930 | 730 | 19,754 | 31 | 164 | 836 | 158 | 1,755 | .... | .... | .... | 87 |
| 1931 | 626 | 16,198 | 16 | 120 | 778 | 130 | 1,382 | .... | .... | .... | 423 |
| 1932 | 444 | 13,140 | 11 | 109 | 590 | 116 | 1,100 | .... | .... | .... | 417 |
| 1933 | 362 | 11,817 | 10 | 87 | 592 | 108 | 880 | 4 | .... | 31 | 456 |
| 1934 | 310 | 12,054 | 15 | 91 | 664 | 99 | 966 | 14 | .... | 30 | 518 |
| 1935 | 311 | 12,729 | 10 | 63 | 774 | 142 | 1,184 | 44 | .... | 41 | 466 |
| 1936 | 285 | 14,128 | 11 | 56 | 899 | 143 | 1,731 | 48 | .... | 49 | 689 |
| 1937 | 269 | 14,855 | 10 | 61 | 1,358 | 175 | 2,534 | 57 | .... | 54 | 911 |
| 1938 | 611 | 15,736 | 9 | 58 | 1,333 | 167 | 2,277 | 86 | .... | 42 | 1,181 |
| 1939 | 587 | 14,458 | 9 | 95 | 1,481 | 185 | 2,240 | 71 | .... | 51 | 1,303 |
| 1940 | 764 | 13,988 | 9 | 511 | 1,541 | 228 | 2,708 | 93 | .... | 62 | 1,326 |
| 1941 | 669 | 13,741 | 9 | 1,306 | 1,736 | 245 | 4,786 | 135 | .... | 61 | 1,645 |
| Cumulative | 10,532 | 252,077 | 264 | 5,161 | 17,161 | 3,743 | 33,553 | 552 | .... | 421 | 9,562 |
| **Natural Gas Liquids:** | | | | | | | | | | | |
| 1941 | 819 | 15,709 | 9 | 2,218 | 2,040 | 842 | 5,374 | 135 | .... | 94 | 1,929 |
| 1942 | 1,016 | 15,079 | 8 | 3,317 | 1,948 | 873 | 7,049 | 60 | .... | 108 | 2,123 |
| 1943 | 1,353 | 16,508 | 1 | 4,417 | 2,029 | 1,031 | 7,287 | 29 | .... | 111 | 1,929 |
| 1944 | 1,798 | 18,364 | 1 | 4,628 | 1,663 | 1,161 | 11,730 | 202 | .... | 114 | 1,932 |
| 1945 | 2,046 | 21,232 | 1 | 4,190 | 1,729 | 1,116 | 13,077 | 324 | .... | 112 | 2,329 |
| 1946 | 2,012 | 21,679 | 20 | 3,847 | 1,966 | 1,282 | 13,495 | 294 | .... | 109 | 2,468 |
| 1947 | 2,240 | 25,336 | 24 | 3,869 | 2,362 | 1,422 | 14,973 | 102 | 475 | 137 | 2,692 |
| 1948 | 2,259 | 26,549 | 33 | 3,539 | 2,561 | 1,566 | 16,901 | 62 | 1,123 | 201 | 3,103 |
| 1949 | 2,280 | 27,154 | 342 | 3,218 | 2,647 | 1,620 | 19,254 | 86 | 1,271 | 230 | 4,025 |
| 1950 | 2,333 | 28,328 | 1 | 3,107 | 3,687 | 1,779 | 20,768 | 79 | 1,312 | 251 | 5,019 |
| 1951 | 2,348 | 29,533 | 1 | [2]2,971 | 4,226 | 2,166 | 22,482 | 2 | 1,202 | 277 | 5,588 |
| 1952 | 2,640 | 30,114 | 1 | [2]2,826 | 4,586 | 4,449 | 23,083 | 2 | 1,270 | 204 | 6,627 |
| 1953 | 2,705 | 31,141 | 1 | [2]3,860 | [3]5,152 | 5,039 | 22,686 | 2 | 1,189 | 1 | 7,569 |
| 1954 | 2,602 | 30,705 | 1 | 11,793 | [3]4,986 | 2 | 22,543 | 2 | 1,027 | 1 | 10,624 |
| 1955 | 2,536 | 30,699 | 1 | 12,102 | [3]5,634 | 2 | 24,722 | 2 | 889 | 1 | 12,512 |
| 1954 Daily Average | 7.1 | 84.1 | 1 | 32.3 | [3]13.7 | 2 | 61.8 | 2 | 2.8 | 1 | 29.1 |
| 1955 Daily Average | 6.9 | 84.1 | 1 | 33.2 | [3]15.4 | 2 | 67.7 | 2 | 2.5 | 1 | 34.3 |

| YEAR | New York | Ohio | Oklahoma | Pennsylvania | Texas | Utah | West Virginia | Wyoming | Others | Total | VALUE AT PLANT $ Thous. | VALUE AT PLANT ¢ Gal. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Natural Gasoline:** | | | | | | | | | | | | |
| 1911 | .... | 40 | 9 | 35 | ..... | .... | 87 | ..... | 1 | 177 | $ 532 | 7.2 |
| 1912 | .... | 41 | 37 | 49 | ..... | .... | 127 | ..... | 2 | 288 | 1,157 | 9.6 |
| 1913 | .... | 49 | 154 | 88 | ..... | .... | 183 | ..... | 3 | 573 | 2,458 | 10.2 |
| 1914 | .... | 58 | 410 | 110 | ..... | .... | 221 | ..... | 7 | 1,014 | 3,106 | 7.3 |
| 1915 | .... | 52 | 754 | 140 | 3 | .... | 258 | ..... | 12 | 1,356 | 5,151 | 7.9 |
| 1916 | 6 | 63 | 1,151 | 231 | 31 | .... | 447 | ..... | .... | 2,464 | 14,331 | 13.8 |
| 1917 | 4 | 130 | 2,741 | 329 | 165 | .... | 778 | ..... | .... | 5,188 | 40,189 | 18.4 |
| 1918 | 5 | 161 | 3,898 | 376 | 174 | .... | 895 | 38 | .... | 6,727 | 50,364 | 17.8 |
| 1919 | 11 | 209 | 4,524 | 483 | 222 | .... | 1,242 | 133 | .... | 8,370 | 64,197 | 18.3 |
| 1920 | 10 | 238 | 4,259 | 504 | 784 | .... | 1,403 | 207 | .... | 9,160 | 71,788 | 18.7 |
| 1921 | 9 | 217 | 4,413 | 473 | 1,837 | .... | 1,301 | 347 | .... | 10,713 | 61,815 | 13.7 |
| 1922 | 12 | 205 | 4,510 | 441 | 2,272 | .... | 1,352 | 475 | .... | 12,044 | 72,711 | 14.4 |
| 1923 | 10 | 239 | 6,435 | 455 | 4,233 | .... | 1,509 | 507 | .... | 19,434 | 77,268 | 9.5 |
| 1924 | 11 | 225 | 7,168 | 458 | 4,442 | .... | 1,466 | 697 | .... | 22,235 | 82,233 | 8.8 |
| 1925 | 10 | 207 | 9,306 | 449 | 5,098 | .... | 1,385 | 780 | 1 | 26,844 | 120,383 | 10.7 |
| 1926 | 13 | 258 | 11,327 | 484 | 5,788 | .... | 1,519 | 967 | 1 | 32,455 | 136,412 | 10.0 |
| 1927 | 11 | 289 | 13,050 | 399 | 7,636 | .... | 1,528 | 1,029 | .... | 39,075 | 118,688 | 7.2 |
| 1928 | 9 | 314 | 14,755 | 395 | 7,727 | .... | 1,660 | 1,020 | 1 | 43,191 | 133,944 | 7.7 |
| 1929 | 6 | 266 | 16,096 | 438 | 9,987 | .... | 1,738 | 1,061 | 1 | 53,183 | 158,410 | 7.1 |
| 1930 | 5 | 213 | 14,076 | 398 | 11,698 | .... | 1,508 | 1,217 | 1 | 52,631 | 128,160 | 5.8 |
| 1931 | 3 | 124 | 10,831 | 341 | 10,159 | .... | 1,258 | 1,227 | 1 | 43,617 | 63,732 | 3.5 |
| 1932 | 3 | 123 | 9,014 | 278 | 8,836 | .... | 1,042 | 1,057 | 1 | 36,281 | 49,244 | 3.2 |
| 1933 | 2 | 111 | 8,583 | 278 | 8,727 | .... | 949 | 813 | .... | 33,810 | 54,368 | 3.8 |
| 1934 | 2 | 140 | 8,462 | 257 | 11,109 | .... | 997 | 828 | .... | 36,556 | 60,523 | 3.9 |
| 1935 | 1 | 148 | 9,045 | 301 | 12,304 | .... | 1,010 | 768 | .... | 39,333 | 70,940 | 4.3 |
| 1936 | .... | 166 | 9,967 | 340 | 12,394 | .... | 1,057 | 807 | .... | 42,770 | 84,572 | 4.7 |
| 1937 | 1 | 183 | 11,721 | 332 | 14,650 | .... | 1,199 | 807 | .... | 49,177 | 97,125 | 4.7 |
| 1938 | 1 | 176 | 11,155 | 254 | 16,331 | .... | 1,200 | 730 | .... | 51,347 | 87,266 | 4.0 |
| 1939 | 1 | 177 | 10,384 | 280 | 18,334 | .... | 1,245 | 749 | .... | 51,650 | 90,050 | 4.2 |
| 1940 | .... | 192 | 9,509 | 366 | 22,191 | .... | 1,400 | 812 | .... | 55,700 | 68,261 | 2.9 |
| 1941 | .... | 196 | 8,625 | 368 | 28,100 | .... | 1,568 | 827 | .... | 64,017 | 105,815 | 3.9 |
| Cumulative | 146 | 5,210 | 226,369 | 10,130 | 225,232 | .... | 33,532 | 17,903 | 32 | 851,580 | $2,180,193 | 6.1 |
| **Natural Gas Liquids:** | | | | | | | | | | | | |
| 1941 | .... | 196 | 10,795 | 381 | 37,116 | .... | 2,334 | 864 | .... | 80,855 | 119,120 | 3.5 |
| 1942 | .... | 166 | 10,598 | 364 | 37,330 | .... | 2,425 | 858 | .... | 83,322 | 121,565 | 3.5 |
| 1943 | .... | 155 | 10,055 | 417 | 39,191 | .... | 2,332 | [1]872 | .... | 87,716 | 146,910 | 4.0 |
| 1944 | .... | 173 | 10,042 | 417 | 44,534 | .... | 2,117 | [1]1,171 | .... | 100,046 | 183,500 | 4.3 |
| 1945 | .... | 154 | 9,909 | 338 | 52,103 | .... | 2,086 | [1]1,258 | .... | 112,004 | 187,564 | 4.0 |
| 1946 | .... | 149 | 9,881 | 262 | 54,357 | 14 | 2,868 | 1,036 | .... | 115,739 | 180,281 | 3.7 |
| 1947 | .... | 168 | 10,631 | 310 | 62,844 | 14 | 3,364 | 1,210 | .... | 132,173 | 294,994 | 5.3 |
| 1948 | .... | 150 | 11,178 | 291 | 72,116 | 14 | 3,637 | 1,438 | .... | 146,721 | 458,977 | 7.4 |
| 1949 | .... | 123 | 12,486 | 244 | 77,031 | 10 | 3,760 | 1,305 | .... | 157,086 | 402,190 | 6.1 |
| 1950 | .... | 103 | 14,733 | 246 | 93,650 | 1 | 4,623 | [1]1,943 | .... | 181,961 | 419,605 | 5.5 |
| 1951 | .... | 107 | 17,542 | 210 | 108,531 | 1 | 4,951 | [2]2,580 | .... | 204,754 | 508,161 | 5.9 |
| 1952 | .... | 38 | 18,613 | 190 | 120,154 | 1 | 5,788 | [2]2,933 | .... | 223,515 | 533,160 | 5.7 |
| 1953 | .... | 11 | 20,183 | 147 | 132,040 | 1 | 7,190 | [2]2,978 | .... | 241,890 | 609,563 | 6.0 |
| [4]1954 | .... | 20 | 20,443 | 136 | 133,947 | 1 | 5,102 | [3]3,264 | .... | 246,500 | 558,138 | 5.4 |
| 1954 | .... | 20 | 20,613 | 139 | 134,769 | 1 | 4,999 | 3,315 | .... | 248,137 | 562,775 | 5.4 |
| 1955 | .... | 29 | 22,262 | 124 | 142,727 | 1 | 4,299 | 3,702 | .... | 262,237 | 594,754 | 5.4 |
| 1954 Daily Average | .... | 0.0 | 56.5 | 0.4 | 369.2 | 1 | 13.7 | 9.1 | .... | 679.8 | ..... | .... |
| 1955 Daily Average | .... | 0.1 | 61.0 | 0.3 | 391.0 | 1 | 11.8 | 10.1 | .... | 718.4 | ..... | .... |

[1] Wyo. in 1943-45 incl. Colo.; in 1950, Colo-Ut.; in 1951-52, Colo.-Neb.-Ut.; in 1953-55, Colo.-Mont.-Ut.
[2] Ill. in 1952-53 incl. Mich.; in 1954 incl. Mich.-Ky.-Ind.; in 1955 incl. Mich.-Ky.-Ind.-Minn.
[3] Kans. incl. Neb.—in 1955 Kans. incl. N. Dak.-Mo.
[4] Nov.-Dec. estimated by WORLD OIL.




# LPG Sales . . . '55 shatters all records, even bigger year forecast for '56.

**By GEORGE R. BENZ, PAUL W. TUCKER and W. F. DEVOE,**
Phillips Petroleum Company, Bartlesville

L-P GAS SALES shattered all records in 1955. Total: 6,006,000,000 gallons.

Another record year is predicted for 1956.

The 1955 sales increase of 880,467,000 gallons represents a 17.2 percent gain over 1954—a remarkable record considering that the industry has been characterized by phenomenal growth.

Domestic and motor fuel sales jumped 15.3 percent to 3,661,000,000 gallons. Industrial and miscellaneous LPG sales increased 7.3 percent to 431 million gallons. Gas manufacturing or utility sales dropped 10.9 percent to 171 million gallons.

Chemical manufacturing use of LPG even outstripped the upswing in the chemical industry by advancing 20.2 percent for a total of 1,262,000,000 gallons.

Sales of LPG for manufacture of synthetic rubber had biggest single increase—56.3 percent for a total of 481 million gallons.

**Domestic and Motor Fuel.** Sales of LPG for domestic use and motor fuel increased 487 million gallons over 1954. The increase alone exceeded sales for the entire industry in 1941. House heating, biggest single factor in the increase, is spreading rapidly northward as people become acquainted with the cleanliness and convenience of LPG.

The 25 percent increase in tank sales is further indication that LPG is becoming more popular among individual users, as well as for house heating. It is estimated that there are between 6500 and 7000 LPG bulk plants in the U. S.

Use of LPG for motor fuel is one of the fastest growing uses. It is estimated that 671 million gallons of LPG were used in internal combustion engines last year. This is a 22.6 percent increase and represents about 11 percent of total industry sales.

Motor fuel gains were significant in nearly all parts of the country. Biggest users are trucks, tractors, buses, irrigation and drilling engines.

There are now more than 250,000 LPG tractors in the U. S. Conversions were up 71 percent for the first six months and carburetor sales (excluding those for tractors) were up 87 percent. In some areas, dealers report that LPG tractors are outselling gasoline or diesel units ten to one.

Truck fleet operators are changing to LPG as service station facilities become more numerous and accessible. Recent surveys show more than 3350 locations where LPG motor fuel service is available. Taxicab fleets also are being converted.

Truck fleet operators are interested in LPG for more reasons than lower oil consumption, less ring wear and more mileage between overhauls. LPG is proving to be the answer to cargo refrigeration and cargo heating.

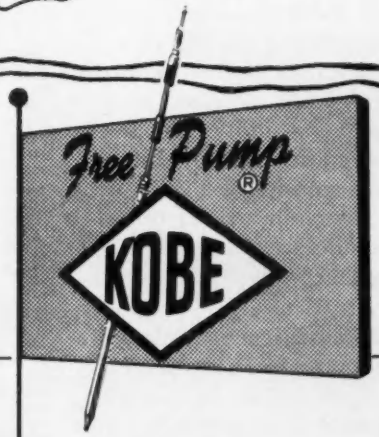
The interest in LPG for industrial tractors and lift trucks which made tremendous gains in 1954, continued in 1955. The fact that maintenance is reduced and that there are less noxious odors in the LPG engine are just two reasons why many fleets of such units are being converted to LPG.

Use of LPG for irrigation pumps continues to increase in spite of the gains natural gas has made in this market. A recent survey of 33,537 irrigation wells in the high plains area of Texas showed that 46 percent used LPG, 35 percent used natural gas and the remainder used either gasoline, diesel fuel or electricity.

Practically all major LPG appliances showed a healthy sales increase last year. LPG range sales increased an estimated 11 percent for a total of 455,000. Sales of automatic LPG water heaters are estimated at about 350,000, almost 13 percent over 1954. LPG warm air furnace sales are estimated at 71,800 or 8.4 percent of the total of this type of gas appliance. Direct heating appliances and recessed wall units totaled 286,900—19 percent of this type appliance. LPG floor furnaces represented 25 percent of the total, or 40,000.

**Industrial and Miscellaneous.** Though natural gas took over some of this market, there was still a 7.3 percent sales increase over 1954 for a total of 431 million gallons. LPG for flame cutting is making gains. One interesting new market is the use of

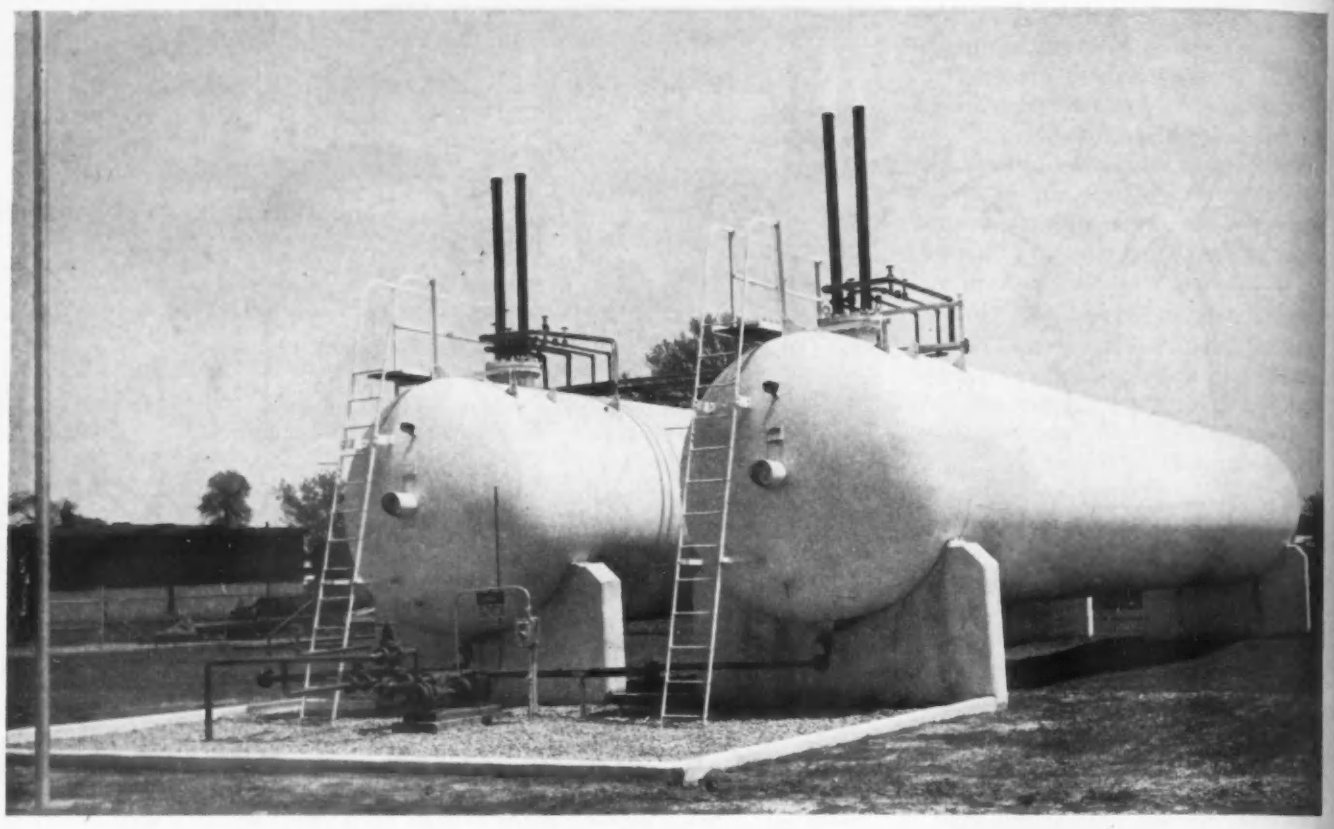
# *There's a better, easier way to pump oil wells, too...*




Tackle an old problem in a new way and frequently you find it tremendously simplified. This is certainly the case with the Kobe *Free Pump* System of oil well pumping... some producers have found it easier to *Free Pump* wells than to flow them. As can be imagined, major economies result. The Kobe system frequently costs $2,000 to $4,000 per well less to install and 50% less to operate. If you are interested in such savings, why not drop us a line?

*Our pictorial magazine, Pumping Trends, shows how KOBE is being used to simplify pumping problems everywhere. Write, we'll be happy to add your name to our mailing list.*

**KOBE, INC.** *General offices: 3040 East Slauson Avenue | Huntington Park, California*



Sales of LPG for industrial and miscellaneous uses was up 7.3 percent in the U. S. During 1955.

LPG in uranium refinery operations. Stand-by plants are being added to take advantage of interruptable rates and as a protection against winter shutdown. Severity of the winter, however, is the determining factor in this latter market.

**Gas Manufacturing.** The 10.9 percent decrease in utility use of LPG resulted from the swing to natural gas. However, LPG is proving popular in new housing developments. There also is an important industry development on the increased cooperation between gas utility companies and the LPG industry. More joint gas promotion was seen in 1955 than any year in the 33-year history of the industry. This doubtless will continue with increased benefits to all.

**Chemical Manufacture.** Sales of LPG as a raw material for manufacture of chemicals and chemical intermediates showed a 20.2 percent increase over 1954 with an estimated volume of 1,262,000,000 gallons. This increase can be attributed to the rapid growth of the petrochemical industry and to the high rate of industrial activity throughout the year. The increased demand for ethylene resulted in large volumes of LPG being used to supplement ethane ethylene and polyethylene plants now under con-

## MARKETED PRODUCTION OF LPG

| Year | Gallons (in Thousands) | Percent Increase | Domestic & Motor Fuel* | Percent Increase | Industrial Miscellaneous[1] | Percent Increase | Gas Mfg. | Percent Increase | Chemical Mfg. | Percent Increase | Rubber Components | Percent Increase |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1922 | 223 | ..... | | | | | | | | | | |
| 1923 | 277 | 24.4 | Sale of Liquefied Petroleum Gas Confined Primarily to Bottled Gas Business Prior to 1928 | | | | | | | | | |
| 1924 | 376 | 36.0 | | | | | | | | | | |
| 1925 | 404 | 7.2 | | | | | | | | | | |
| 1926 | 465 | 15.2 | | | | | | | | | | |
| 1927 | 1,091 | 134.6 | | | | | | | | | | |
| 1928 | 4,523 | 314.6 | 2,600 | ..... | 400 | ..... | 1,500 | ..... | ..... | ..... | ..... | ..... |
| 1929 | 9,931 | 119.6 | 5,900 | 126.9 | 1,500 | 275.0 | 2,500 | 66.7 | ..... | ..... | ..... | ..... |
| 1930 | 18,017 | 81.4 | 11,800 | 100.0 | 2,200 | 46.7 | 4,000 | 60.0 | ..... | ..... | ..... | ..... |
| 1931 | 28,770 | 59.7 | 15,295 | 29.6 | 7,172 | 226.0 | 6,303 | 57.6 | ..... | ..... | ..... | ..... |
| 1932 | 34,115 | 18.6 | 16,244 | 6.2 | 8,167 | 13.9 | 9,703 | 53.9 | ..... | ..... | ..... | ..... |
| 1933 | 38,931 | 14.1 | 16,626 | 2.3 | 13,987 | 71.3 | 8,318 | —14.3 | ..... | ..... | ..... | ..... |
| 1934 | 56,427 | 44.9 | 17,681 | 6.3 | 32,448 | 132.0 | 6,298 | —24.3 | ..... | ..... | ..... | ..... |
| 1935 | 76,855 | 36.2 | 21,380 | 20.9 | 47,894 | 47.6 | 7,581 | 20.4 | ..... | ..... | ..... | ..... |
| 1936 | 106,652 | 38.8 | 30,014 | 40.4 | 67,267 | 40.4 | 9,371 | 23.6 | ..... | ..... | ..... | ..... |
| 1937 | 141,400 | 32.6 | 40,823 | 36.0 | 62,610 | [3] | 11,175 | 19.3 | 26,792 | ..... | ..... | ..... |
| 1938 | 165,201 | 16.8 | 57,832 | 41.7 | 62,694 | 0.0 | 12,386 | 10.8 | 32,299 | 20.5 | ..... | ..... |
| 1939 | 223,580 | 35.3 | 87,530 | 51.4 | 93,723 | 49.4 | 15,435 | 24.6 | 26,892 | —16.7 | ..... | ..... |
| 1940 | 313,456 | 40.2 | 134,018 | 53.1 | 124,482 | 32.8 | 20,285 | 31.4 | 34,671 | 29.0 | ..... | ..... |
| 1941 | 462,852 | 47.7 | 220,722 | 64.7 | 172,669 | 68.6 | 25,255 | 24.5 | 44,206 | 27.5 | ..... | ..... |
| 1942 | 585,440 | 26.5 | 303,857 | 37.6 | 197,179 | 14.2 | 31,366 | 24.2 | 53,038 | 20.0 | ..... | ..... |
| 1943 | 675,233 | 15.3 | 344,962 | 13.6 | 237,396 | 20.4 | 37,519 | 19.6 | 55,356 | 4.4 | ..... | ..... |
| 1944 | 1,060,156 | [4] | 445,617 | 29.2 | 254,590 | 7.3 | 45,879 | 22.3 | 151,985 | 175.0 | 162,085 | ..... |
| 1945 | 1,276,766 | 20.4 | 533,262 | 19.7 | 256,577 | 0.8 | 53,849 | 17.4 | 224,291 | 47.5 | 208,787 | 28.8 |
| 1946 | 1,704,262 | 33.5 | 758,466 | 42.2 | 253,745 | —1.1 | 86,660 | 61.0 | 311,499 | 38.8 | 293,892 | 40.8 |
| 1947 | 2,209,797 | 29.7 | 1,150,538 | 51.7 | 274,125 | 8.0 | 169,332 | 95.4 | 414,267 | 33.0 | 201,535 | —31.4 |
| 1948 | 2,736,801 | 23.8 | 1,473,289 | 28.1 | 275,883 | 0.6 | 237,638 | 40.3 | 524,350 | 26.6 | 225,641 | 11.9 |
| 1949 | 2,836,599 | 3.6 | 1,627,550 | 10.5 | 247,103 | —10.4 | 239,210 | 0.6 | 544,886 | 3.9 | 177,850 | —21.1 |
| 1950 | 3,482,567 | 22.8 | 2,022,464 | 24.3 | 355,456 | [2] | 251,694 | 5.2 | 624,468 | 14.6 | 228,485 | 28.5 |
| 1951 | 4,227,275 | 21.4 | 2,456,804 | 21.6 | 269,408 | [2] | 281,692 | 11.9 | 844,507 | 35.2 | 374,864 | 64.1 |
| 1952 | 4,477,379 | 5.9 | 2,636,736 | 7.4 | 338,959 | 26.0 | 259,697 | —7.8 | 870,990 | 3.1 | 370,997 | — 1.1 |
| 1953 | 4,932,009 | 10.2 | 2,977,418 | 12.9 | 374,233 | 1.04 | 222,430 | —14.4 | 967,427 | 11.1 | 390,501 | 5.3 |
| 1954 | 5,125,533 | 3.9 | 3,174,012 | 6.6 | 401,615 | 7.3 | 191,932 | —13.7 | 1,050,239 | 8.6 | 307,735 | —21.2 |
| 1955 | 6,006,000 | 17.2 | 3,661,000 | 15.3 | 431,000 | 7.3 | 171,000 | —10.9 | 1,262,000 | 20.2 | 481,000 | 56.3 |

* Household use plus other requirements by these customers such as irrigation pumping, tractor fuel, flame weeding, chicken brooding and similar uses. Included also is LPG sold by domestic distributors but used for industrial purposes. Included also, in years following 1950, is LPG sold direct by producers and marketers solely for fueling internal combustion engines.

[1] For all years prior to 1951, include LPG sold for refueling internal combustion engines.

[2] Not comparable due to segregation of chemical manufacturing.

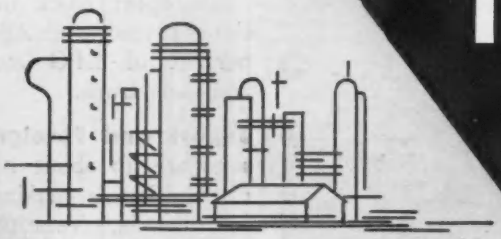
[3] Not comparable due to change in method of reporting LPG sold for refueling internal combustion engines.

[4] Not comparable due to inclusion of rubber components.

**REMARKS:** In this table total sales for all years except 1955 were obtained from U.S. Bureau of Mines reports. Distribution for the years 1931 to 1954, inclusive, was obtained from the same source. All other volumes were estimated by the writers. The total sales volumes includes all LPG (propane, butane, and propane-butane mixtures) when sold as such. Until 1944 the sale of pentane when sold for any purpose other than motor fuel blending was included. Since then it has been excluded. It does not include butane when blended with heavier petroleum fractions for motor gasoline purposes. Inter-company sales transactions such as purchases of LPG by one company from other companies and resold as LPG have been eliminated in order to avoid duplication of sales figures.

# *Finest*

## IN THE FIELD



*Your* SUPPLY STORE IS OUR DISTRIBUTOR

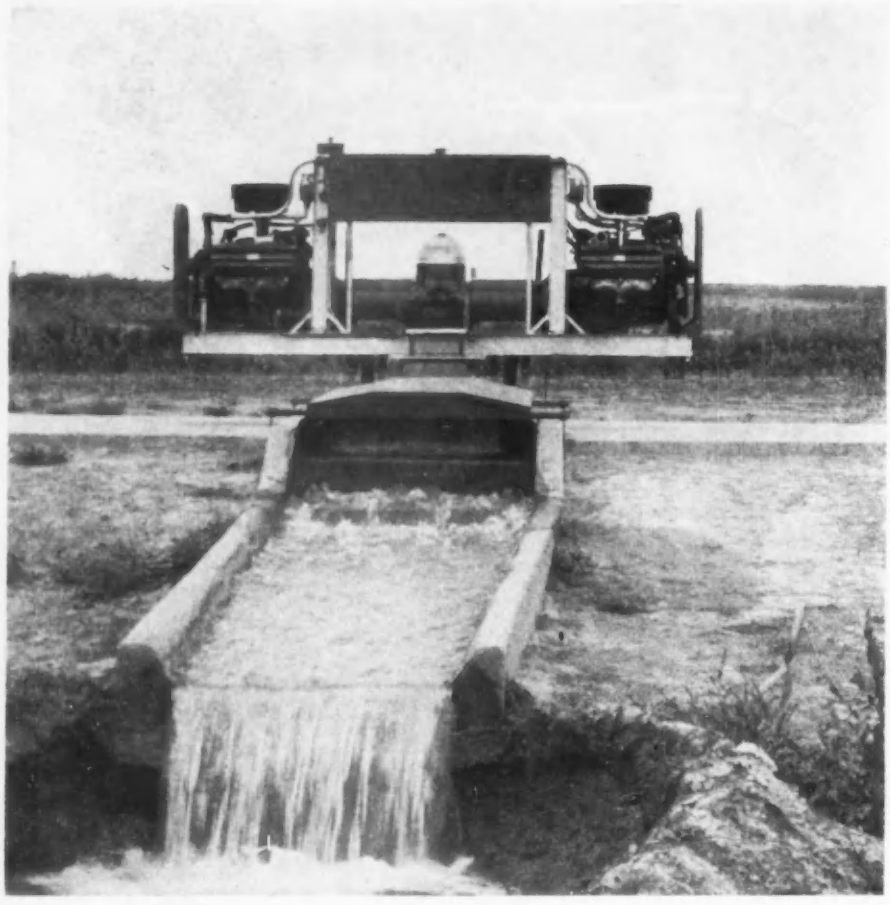
# W.C. NORRIS MANUFACTURER, INC.

## TULSA, OKLAHOMA

**BRANCHES:**
GREAT BEND, KANSAS; CORPUS CHRISTI, HOUSTON, KILGORE, ODESSA, WICHITA FALLS, TEXAS; OKLAHOMA CITY, OKLAHOMA; SALEM, ILLINOIS; CASPER, WYOMING;
**EXPORT:** 30 ROCKEFELLER PLAZA, NEW YORK CITY

Since NORRIS 1882

WEST COAST DIST.: REPUBLIC SUPPLY CO. OF CALIF., LOS ANGELES



LPG use by irrigation pumps is growing. In the Texas plains area 46 percent of the pumps use LPG.

struction or placed in operation.

If chemical sales were combined with that which goes into the manufacture of synthetic rubber components (which is really a chemical use), the volume would total 1,743,000,000 or nearly 30 percent of the entire market.

**Rubber.** Use of LPG in the manufacture of synthetic rubber components jumped 56.3 percent to a total of 481 million gallons. This is the largest category percentage increase of any of the major markets. It is significant that since the switch to operation by private industry late in April, synthetic rubber production has been at the rate of 17 percent above that of the first four months.

The capacity operation of the industry stems from an unprecedented demand for synthetic rubber and specifically from the largest automobile production in history. It is estimated that 8 million cars were manufactured in 1955. About 6,666,000 were produced in 1950, the largest previous year.

It is believed that the present high rubber demand will continue during 1956. Private industry has demonstrated a high production capacity and several, including Phillips, have announced major expansions.

**Supply.** Production capacity of the LPG industry continues to increase. Twenty-two new plants went on stream in 1955 with a total production capacity of nearly 850,000 gallons per day. Twelve new plants are expected to be added in 1956 with a production capacity of nearly half a million gallons a day. The industry has the potential production capacity to meet large additional demands for LPG.

**Storage.** Large increases were seen in 1955 in LPG storage facilities in both the above ground steel storage tanks and in underground storage facilities. Present estimates of LPG underground storage capacity totals 602,-700,000 gallons. An additional 292 million gallons of underground storage is either under construction or proposed.

There was more interest shown in refrigerated storage of LPG in 1955 but none definitely announced. Such storage would be in insulated vertical tanks at low temperatures and pressures.

**Transportation.** Significant additions to LPG transportation facilities were seen in 1955. One new ship (LPG tanker) is being readied for Caribbean service. One new ocean-going LPG barge was added to the water fleet. Seven products pipe lines were announced or are under construction. They will be equipped for products and LPG transportation.

There are about 20,000 tank cars in LPG service. Because so many tank cars are in dual LPG and anhydrous ammonia service, the number in LPG service during peak demand periods even may exceed this number.

Transport truck movements continue to increase. Approximately 50 percent of LPG movement is by transport truck.

**Export and Foreign.** LPG export sales are up about 10 percent. LPG distribution is making rapid strides in Canada, Venezuela, England, France, Italy, Mexico and in the Scandinavian countries. There is at least one LPG tanker operating out of Italy, three tankers operating in Scandinavian countries and at least four more LPG tankers in service in other ports. There are two butane barges in Holland.

**Federal Control.** Already Federal regulation of natural gas producers seems to be decreasing supplies of natural gas, from which nearly 70 percent of LPG gas is derived. Latest drilling records show a 12 percent decline in gas well completions during 1955. Also, only 2.3 trillion cubic feet of new gas reserves were committed to large interstate pipe lines in 1954, compared with 6.4 trillion in 1953.

If this trend is not halted by the Harris Bill, LPG dealers will be faced with shorter supplies and higher prices.

**Outlook for 1956.** Although LPG sales for 1955 far exceeded total sales for the first 24 years of the industry, competition in the fuel market still remains keen. The LPG industry must maintain its alertness and initiative if it is to continue to grow.

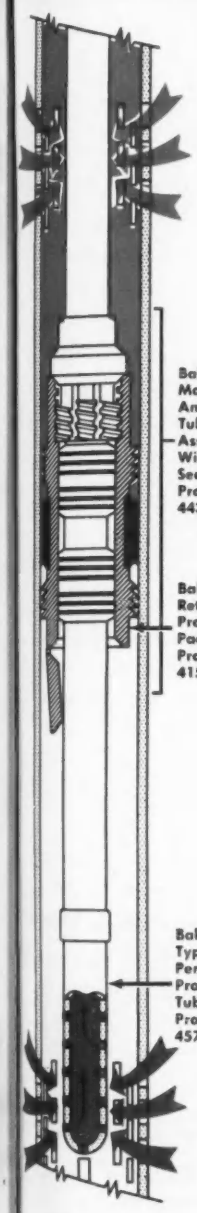
Weather conditioning (winter heating-summer cooling), motor fuel, and house heating applications are the markets offering the greatest sales potential for the LPG dealer. LPG for chemical purposes will continue to rise significantly.

1956 should be another spectacular growth year for the industry.

# for all

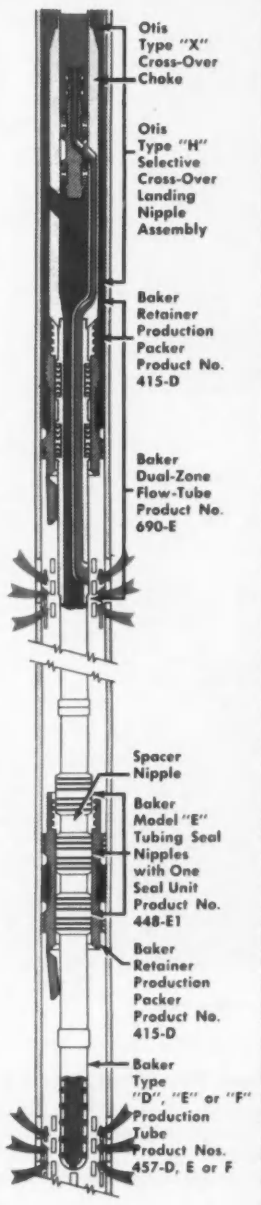
## DUAL ZONE

### SINGLE PACKER


Baker Model "E" Anchor Tubing Seal Assembly With Two Seal Units Product No. 443-E2
Baker Retainer Production Packer Product No. 415-D
Baker Type "F" Perforated Production Tube Product No. 457-F

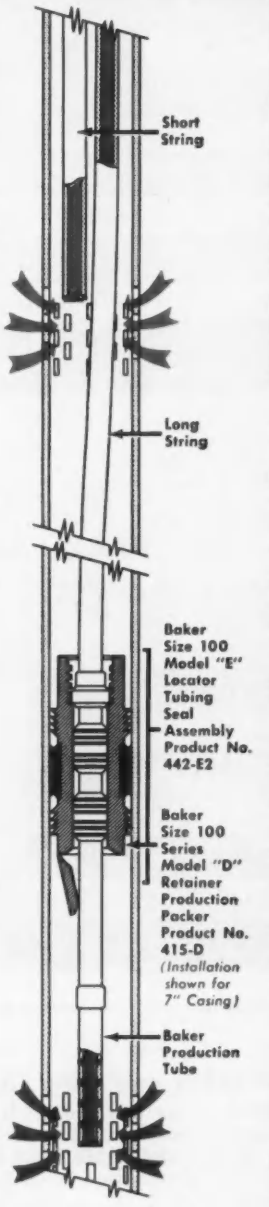
Illustrates Packer set in casing, with anchored production string for dual zone production. Tubing can be released from packer by rotating to right.

### SELECTIVE CROSS-OVER


Otis Type "X" Cross-Over Choke
Otis Type "H" Selective Cross-Over Landing Nipple Assembly
Baker Retainer Production Packer Product No. 415-D
Baker Dual-Zone Flow-Tube Product No. 690-E
Spacer Nipple
Baker Model "E" Tubing Seal Nipples with One Seal Unit Product No. 448-E1
Baker Retainer Production Packer Product No. 415-D
Baker Type "D", "E" or "F" Production Tube Product Nos. 457-D, E or F

Illustrates selective two packer dual zone production hook-up (Baker-Otis) with Cross-over Choke installed. Flow pattern can be switched with Parallel Flow Choke.

### PARALLEL STRING


Short String
Long String
Baker Size 100 Model "E" Locator Tubing Seal Assembly Product No. 442-E2
Baker Size 100 Series Model "D" Retainer Production Packer Product No. 415-D (Installation shown for 7" Casing)
Baker Production Tube

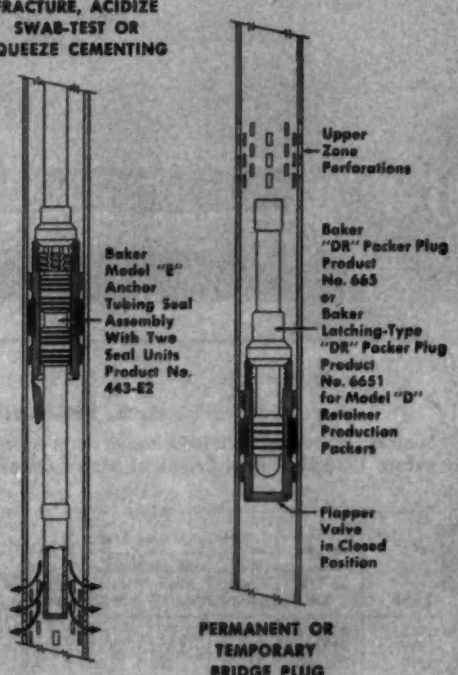
Illustrates simplest type of parallel string installation. Other installations involving two packers with full-opening tubing running through and below lower packer available.

## SUPPLEMENTAL APPLICATIONS

**WATER OR GAS INJECTION**

The Baker Retainer Production Packer contains features that permit it to be used as a squeeze or testing tool as well as a temporary or permanent bridge plug. It is thus used in a variety of supplemental applications such as gas or water injection, testing, fracturing, acidizing, etc., that may be required either during the completion phase of a well or during a later phase.

**FRACTURE, ACIDIZE SWAB-TEST OR SQUEEZE CEMENTING**


Baker Model "E" Anchor Tubing Seal Assembly With Two Seal Units Product No. 443-E2
Upper Zone Perforations
Baker "DR" Packer Plug Product No. 665 or Baker Latching-Type "DR" Packer Plug Product No. 6651 for Model "D" Retainer Production Packers
Flapper Valve in Closed Position

**PERMANENT OR TEMPORARY BRIDGE PLUG**

*Send for complete information*

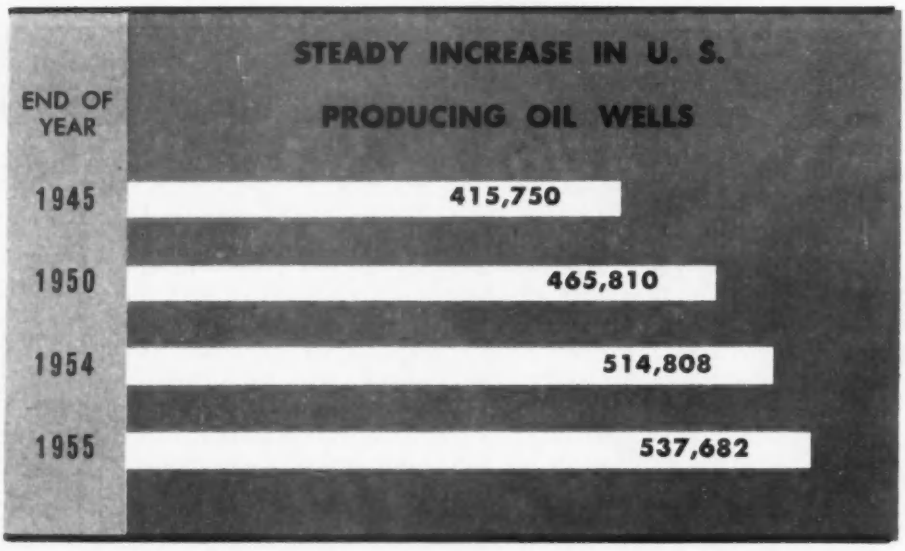
*A new 72 page catalog supplement is now available on the Baker Retainer Production Packer and its many features and applications. Write or ask your Baker Representative for Baker Catalog Supplement No. 502.*

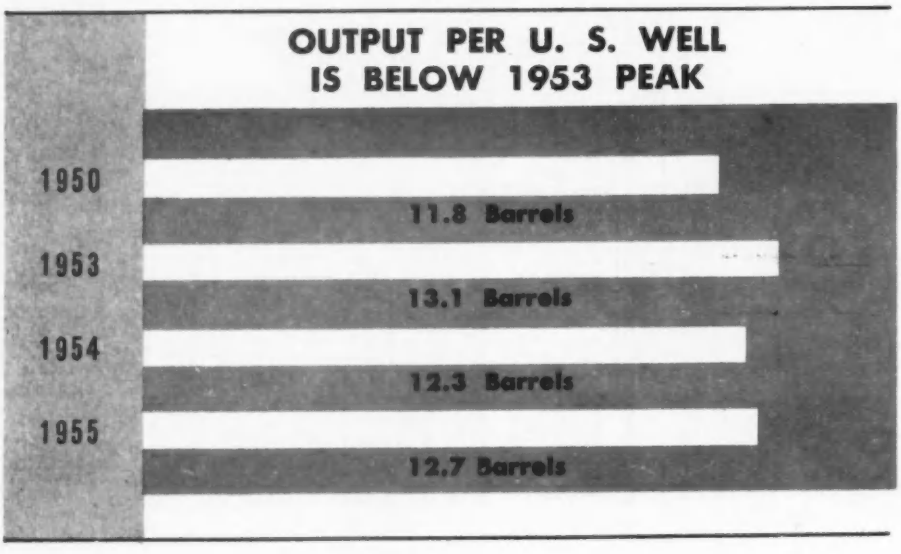
# BAKER

**OIL TOOLS, INC.**

HOUSTON • LOS ANGELES • NEW YORK

# Producing Oil Wells . . . New industry mark set for wells on production . . . abandonments lowest since 1950.




NET GAIN in number of U. S. producing oil wells in 1955 took the sharpest jump upward in 35 years. There were more new well completions than at any time in the industry's history. Total abandonments dropped to the lowest point since 1950.

At the end of 1955 there were 537,682 producing oil wells in the U. S.—22,875 (4.4 percent) more than the 1954 total of 514,808. Until last year, the net gain had not approached 20,000 wells since 1921, when a 23,500-well increase was reported. Here are the reasons for the big increase:

- A big increase in production, resulting from sharp demand growth.
- Stable prices.
- Opening of several thousand shut-in wells in California.

There were 30,433 new well completions during 1955—the largest number in the history of the industry. Producers abandoned or shut in only 7559 wells last year, the smallest number since 1950. This is in direct contrast to the record-breaking 15,192 abandonments and shut-ins during 1954.

Production of U. S. oil wells averaged 12.7 barrels daily in 1955, fourtenths of a barrel more than in 1954.

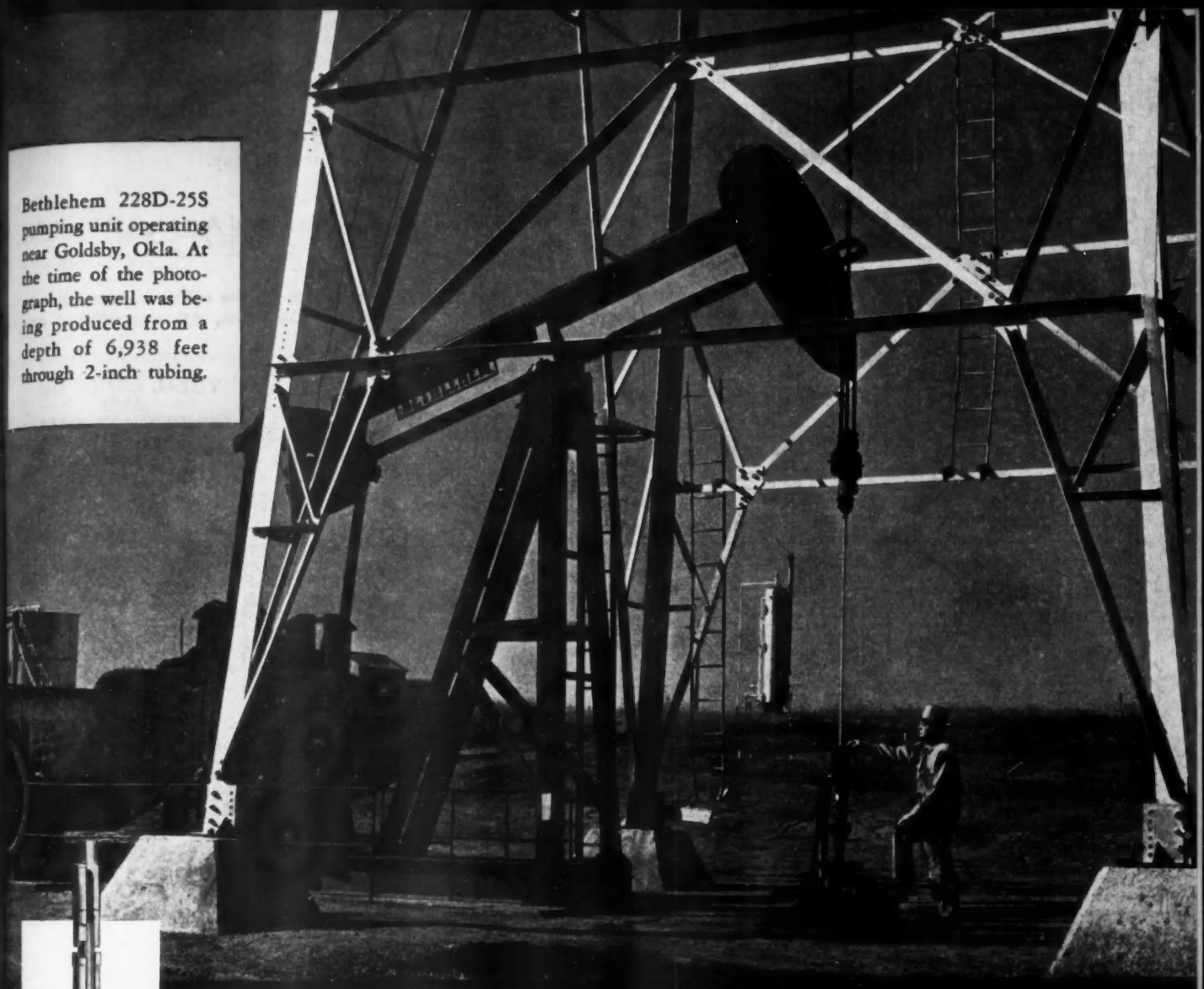
In addition to crude oil wells, there were 5212 gas/condensate wells in

## U. S. Producing Oil Wells and Daily Output Per Well, by Years

Sources: Producing wells and output from Bureau of Mines except as noted. Wells completed from WORLD OIL and predecessor, The Oil Weekly, except 1918-1920 from Bureau of Mines. Output per well obtained by dividing daily average U. S. production for year by average number between wells producing Jan. 1 and Dec. 31.

| YEAR | Wells Producing at Year End | Changes During Year | | | Bbls. Prod. per Well per Day |
|---|---|---|---|---|---|
| | | Wells Completed | *Wells Abandoned | †Net Gain in Wells | |
| 1918 | 203,375 | 17,860 | ..... | ..... | .... |
| 1919 | 227,000 | 21,041 | —2,584 | 23,625 | 4.8 |
| 1920 | 251,000 | 24,278 | 278 | 24,000 | 5.0 |
| 1921 | 274,500 | 14,715 | —8,785 | 23,500 | 4.9 |
| 1922 | 284,880 | 17,790 | 7,410 | 10,380 | 5.7 |
| 1923 | 290,100 | 16,182 | 10,962 | 5,220 | 6.6 |
| 1924 | 299,100 | 14,707 | 5,707 | 9,000 | 6.2 |
| 1925 | 306,100 | 17,029 | 10,029 | 7,000 | 6.5 |
| 1926 | 318,600 | 18,626 | 6,126 | 12,500 | 6.8 |
| 1927 | 323,300 | 14,382 | 9,682 | 4,700 | 7.7 |
| 1928 | 327,800 | 12,348 | 7,848 | 4,500 | 7.6 |
| 1929 | 328,200 | 15,362 | 14,962 | 400 | 8.4 |
| 1930 | 331,070 | 11,693 | 8,823 | 2,870 | 7.5 |
| 1931 | 315,850 | 7,011 | 22,231 | —15,220 | 7.2 |
| 1932 | 321,500 | 10,530 | 4,880 | 5,650 | 6.7 |
| 1933 | 326,850 | 8,070 | 2,720 | 5,350 | 7.7 |
| 1934 | 333,070 | 13,119 | 6,899 | 6,220 | 7.5 |
| 1935 | 340,990 | 15,418 | 7,498 | 7,920 | 8.1 |
| 1936 | 349,450 | 18,704 | 10,244 | 8,460 | 8.7 |
| 1937 | 363,030 | 23,115 | 9,535 | 13,580 | 9.8 |
| 1938 | 369,640 | 19,106 | 12,496 | 6,610 | 9.1 |
| 1939 | 380,390 | 17,734 | 6,984 | 10,750 | 9.2 |
| 1940 | 389,010 | 19,843 | 11,223 | 8,620 | 9.6 |
| 1941 | 399,960 | 19,590 | 8,640 | 10,950 | 9.7 |
| 1942 | 404,840 | 10,977 | 6,097 | 4,880 | 9.4 |
| 1943 | 407,170 | 9,887 | 7,557 | 2,330 | 10.2 |
| 1944 | 412,220 | 13,502 | 8,452 | 5,050 | 11.2 |
| 1945 | 415,750 | 13,944 | 10,414 | 3,530 | 11.3 |
| 1946 | 421,460 | 16,087 | 10,377 | 5,710 | 11.3 |
| 1947 | 426,280 | 17,613 | 12,793 | 4,820 | 12.0 |
| 1948 | 437,880 | 22,197 | 10,597 | 11,600 | 12.8 |
| 1949 | 448,680 | 21,415 | 10,615 | 10,800 | 11.4 |
| 1950 | 465,870 | 23,775 | 6,585 | 17,190 | 11.8 |
| 1951 | 474,990 | 23,532 | 14,412 | 9,120 | 13.1 |
| 1952 | 488,520 | 23,371 | 9,841 | 13,530 | 13.0 |
| 1953 | 498,940 | 25,762 | 15,342 | 10,420 | 13.1 |
| 1953‡ | 501,859 | 25,323 | 13,286 | 12,037 | 13.0 |
| 1954‡ | 514,808 | 28,141 | 15,192 | 12,949 | 12.3 |
| 1955‡ | 537,682 | ..... | ..... | ..... | 12.7 |

* Wells abandoned or shut in. Minus sign (—) indicates shut in wells put on production. † Minus sign (—) indicates decrease in producing wells. ‡ WORLD OIL estimate.



Bethlehem 228D-25S pumping unit operating near Goldsby, Okla. At the time of the photograph, the well was being produced from a depth of 6,938 feet through 2-inch tubing.

# For the Smoothest Pumping Job You Ever Saw

Whenever a well of yours is ready for the pump and you're looking for equipment . . . make it All-Bethlehem! Bethlehem surface unit, rod string, and bottom-hole pump. The outfit will give you a smoother, more trouble-free performance than you ever before experienced.

No matter what type of wells you have on your lease, you can obtain the right combination of "matched" equipment from Bethlehem. Here's what we offer:

**Pumping Units.** These are available in an exceptionally wide list of choices. They begin with the 10D-4, a tiny unit that is perfect for stripper production and pilot waterfloods. They range all the way to the giant 640, a really huge model with 16-ft stroke and 34,000-lb beam. Included in the line are special units equipped with portable base.

**Sucker Rods.** A complete selection, including the Type 43 high-strength rod for deep-hole jobs. There's a Bethlehem sucker rod for every well condition in the field.

**Beeline Pumps.** These up-to-the-minute subsurface pumps are also available in a wide range of sizes and types. Whether your well is shallow or deep, sandy or gaseous, ornery or docile, you can select a Beeline Pump that's perfect for the job.

So specify an All-Bethlehem outfit the next time you're in the market for this equipment. Put it to work and watch it go. You'll find you've bought yourself a smoothie!

**BETHLEHEM SUPPLY COMPANY**

*General Offices:* 21 E. Second St., Tulsa, Okla.

the U. S. at the end of 1955, producing an average of 23.5 barrels daily per well of lease condensate. This compares with 5050 condensate wells averaging 21.2 barrels per day at the end of 1954.

Combined crude and condensate wells at the end of 1955 totaled 542,895, and they averaged 12.7 barrels daily per well. In 1954, 519,858 wells produced an average of 12.2 barrels per well per day.

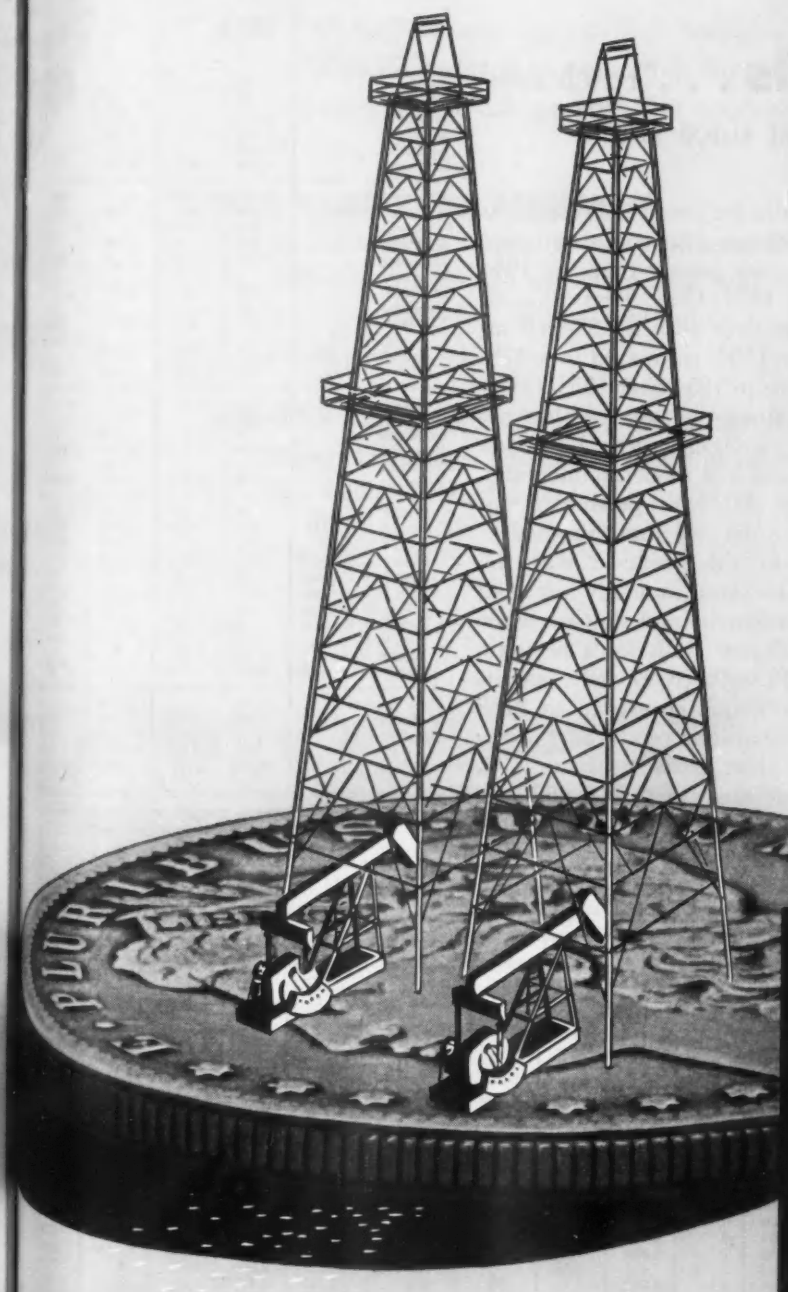
## U. S. Wells Producing Crude Oil and Lease Condensate, Methods of Producing, and Average Output Per Well, by States and Districts, at End of 1955

Data include only wells producing crude oil and lease condensate, handled as crude. Figures do not include inactive or shut-in wells, gas wells, or gas-condensate wells yielding condensate production through operation of plants. Data compiled by WORLD OIL, with cooperation of state conservation departments and other sources.

| | CONDENSATE WELLS | | | CRUDE OIL WELLS | | | | | TOTAL CRUDE OIL AND CONDENSATE WELLS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Bbls. Daily Prod. | | | | | Bbls. Daily Prod. | | | Bbls. Daily Prod. | |
| STATE or DISTRICT | Wells | Total | Per Well | Flowing | Art. Lift | Total Wells | Total | Per Well | Wells | Total | Per Well |
| **Alabama** | | | | **11** | **102** | **113** | **4,250** | **37.6** | **113** | **4,250** | **37.6** |
| **Arkansas** | **98** | **450** | **4.6** | **410** | **4,057** | **4,467** | **73,800** | **16.5** | **4,565** | **74,250** | **16.3** |
| **California** | | | | **1,759** | **32,571** | **34,330** | **979,100** | **28.5** | **34,330** | **979,100** | **28.5** |
| San Joaquin Valley | | | | 1,055 | 16,535 | 17,590 | 421,400 | 24.0 | 17,590 | 421,400 | 24.0 |
| Coastal District | | | | 494 | 4,956 | 5,450 | 227,500 | 41.7 | 5,450 | 227,500 | 41.7 |
| Los Angeles Basin | | | | 210 | 11,080 | 11,290 | 330,200 | 29.2 | 11,290 | 330,200 | 29.2 |
| **Colorado** | | | | **345** | **1,784** | **2,129** | **155,900** | **73.2** | **2,129** | **155,900** | **73.2** |
| **Florida** | | | | | **11** | **11** | **1,400** | **127.3** | **11** | **1,400** | **127.3** |
| **Illinois** | | | | **27** | **36,758** | **36,785** | **227,500** | **6.2** | **36,785** | **227,500** | **6.2** |
| **Indiana** | | | | **23** | **5,011** | **5,034** | **29,300** | **5.8** | **5,034** | **29,300** | **5.8** |
| **KANSAS*** | | | | **121** | **35,452** | **35,573** | **336,000** | **9.4** | **35,573** | **336,000** | **9.4** |
| **Kentucky** | | | | **12** | **17,008** | **17,020** | **40,250** | **2.4** | **17,020** | **40,250** | **2.4** |
| **Louisiana** | **1,712** | **60,050** | **35.1** | **5,855** | **10,817** | **16,672** | **711,750** | **42.7** | **18,384** | **771,800** | **42.0** |
| North Louisiana | 506 | 2,450 | 4.8 | 1,070 | 8,614 | 9,684 | 114,150 | 11.8 | 10,190 | 116,600 | 11.4 |
| South Louisiana | 1,206 | 57,600 | 47.8 | 4,785 | 2,203 | 6,988 | 597,600 | 85.5 | 8,194 | 655,200 | 80.0 |
| **Michigan** | | | | **550** | **3,689** | **4,239** | **30,250** | **7.1** | **4,239** | **30,250** | **7.1** |
| **Mississippi** | **219** | **5,050** | **23.1** | **497** | **1,617** | **2,114** | **107,100** | **50.7** | **2,333** | **112,150** | **48.1** |
| **Missouri** | | | | | **97** | **97** | **150** | **1.5** | **97** | **150** | **1.5** |
| **Montana** | | | | **311** | **3,587** | **3,898** | **44,400** | **11.4** | **3,898** | **44,400** | **11.4** |
| **Nebraska** | | | | **31** | **932** | **963** | **28,300** | **29.4** | **963** | **28,300** | **29.4** |
| **Nevada** | | | | | **3** | **3** | **300** | **100.0** | **3** | **300** | **100.0** |
| **New Mexico** | **188** | **3,700** | **19.7** | **3,502** | **4,727** | **8,229** | **224,850** | **27.3** | **8,417** | **228,550** | **27.2** |
| Northwest New Mexico | | | | 14 | 111 | 125 | 1,500 | 12.0 | 125 | 1,500 | 12.0 |
| Southeast New Mexico | 188 | 3,700 | 19.7 | 3,488 | 4,616 | 8,104 | 223,350 | 27.6 | 8,292 | 227,050 | 27.4 |
| **New York** | | | | | **22,300** | **22,300** | **10,650** | **0.5** | **22,300** | **10,650** | **0.5** |
| **North Dakota** | | | | **444** | **92** | **536** | **35,850** | **66.9** | **536** | **35,850** | **66.9** |
| **Ohio** | | | | **80** | **14,660** | **14,740** | **12,850** | **0.9** | **14,740** | **12,850** | **0.9** |
| **Oklahoma*** | | | | **3,180** | **71,430** | **74,610** | **584,850** | **7.8** | **74,610** | **584,850** | **7.8** |
| **Pennsylvania** | | | | | **78,500** | **78,500** | **19,200** | **0.2** | **78,500** | **19,200** | **0.2** |
| **South Dakota** | | | | | **3** | **3** | **50** | **16.7** | **3** | **50** | **16.7** |
| **Tennessee** | | | | | **25** | **25** | **50** | **2.0** | **25** | **50** | **2.0** |
| **Texas** | **2,959** | **52,200** | **17.6** | **47,669** | **108,811** | **156,480** | **2,884,550** | **18.4** | **159,439** | **2,936,750** | **18.4** |
| Dist. 1: South Central | 41 | 550 | 13.4 | 474 | 5,287 | 5,761 | 55,900 | 9.7 | 5,802 | 56,450 | 9.7 |
| Dist. 2: Middle Gulf | 672 | 8,150 | 12.1 | 3,265 | 1,977 | 5,242 | 153,900 | 29.4 | 5,914 | 162,050 | 27.4 |
| Dist. 3: Upper Gulf | 858 | 25,700 | 30.0 | 5,115 | 6,998 | 12,113 | 413,750 | 34.2 | 12,971 | 439,450 | 33.9 |
| Dist. 4: Lower Gulf-S.W. | 449 | 5,450 | 12.1 | 5,248 | 6,609 | 11,857 | 240,900 | 20.3 | 12,306 | 246,350 | 20.0 |
| Dist. 5: East Central | 94 | 500 | 5.3 | 446 | 2,606 | 3,052 | 48,950 | 16.0 | 3,146 | 49,450 | 15.7 |
| Dist. 6: Northeast | 471 | 5,100 | 10.8 | 1,351 | 2,542 | 3,893 | 126,450 | 32.5 | 4,364 | 131,550 | 30.1 |
| Dist. 6: East Texas Field | | | | 10,609 | 9,238 | 19,847 | 223,300 | 11.3 | 19,847 | 223,300 | 11.3 |
| Dist. 7-B: North Central | 54 | 50 | 0.9 | 2,410 | 11,192 | 13,602 | 149,950 | 11.0 | 13,656 | 150,000 | 7.3 |
| Dist. 7-C: West Central | 87 | 4,450 | 51.1 | 3,182 | 3,453 | 6,635 | 174,750 | 26.3 | 6,722 | 179,200 | 26.7 |
| Dist. 8: West | 121 | 1,650 | 13.6 | 13,651 | 23,966 | 37,617 | 990,750 | 26.3 | 37,738 | 992,400 | 26.3 |
| Dist. 9: North | 92 | 400 | 4.3 | 1,770 | 25,730 | 27,500 | 215,950 | 7.9 | 27,592 | 216,350 | 7.8 |
| Dist. 10· Panhandle | 20 | 200 | 10.0 | 148 | 9,213 | 9,361 | 90,000 | 9.6 | 9,381 | 90,200 | 9.6 |
| **Utah** | | | | **2** | **68** | **70** | **4,650** | **66.4** | **70** | **4,650** | **66.4** |
| **Virginia** | | | | | **25** | **25** | **100** | **4.0** | **25** | **100** | **4.0** |
| **West Virginia** | | | | | **12,500** | **12,500** | **6,150** | **0.5** | **12,500** | **6,150** | **0.5** |
| **Wyoming** | **36** | **1,050** | **29.2** | **535** | **5,681** | **6,216** | **278,650** | **44.8** | **6,252** | **279,700** | **44.7** |
| **Total U. S. End 1955** | **5,212** | **122,500** | **23.5** | **65,364** | **472,318** | **537,682** | **6,832,200** | **12.7** | **542,894** | **6,954,700** | **12.8** |
| *Total U. S. End 1954 | 5,050 | 106,900 | 21.2 | 62,156 | 452,652 | 514,808 | 6,250,500 | 12.1 | 519,858 | 6,357,400 | 12.2 |

* Data by States in WORLD OIL, Feb. 15, 1955, page 174.

# TWO OIL WELLS FOR THE PRICE OF ONE



oilmaster PUMPS
FOREMOST IN THE INDUSTRY

***...a most tempting proposition and one that is fast approaching an economic reality.***

Dual completions in areas where productive horizons overlie one another have been commonplace for many years, but until recent years, dually completed wells were dependent on high reservoir pressure to produce the wells by natural flow.

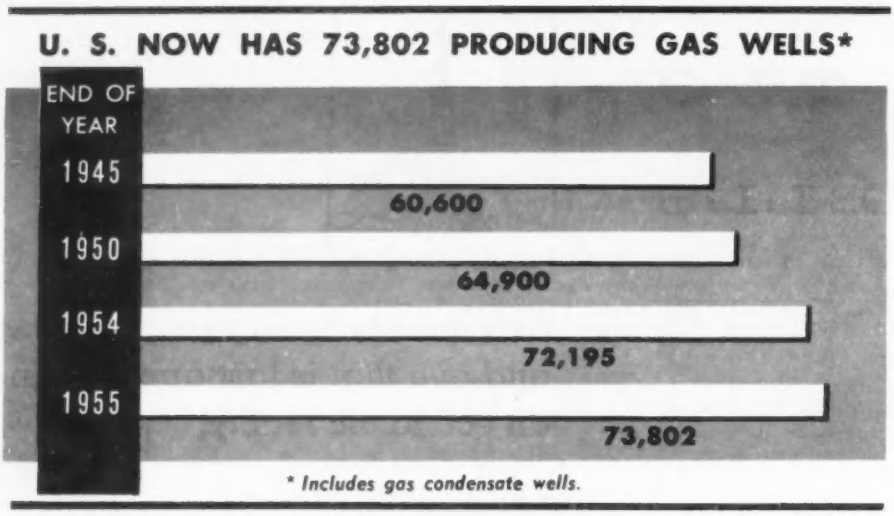
Oilmaster Dual Zone pumping equipment makes it possible to pump simultaneously from two separate zones without comingling the fluids. Only one pumping unit and one tubing and rod string is required since the annulus between the tubing and casing conducts the lower zone fluid to the surface.

In a dually completed well, the additional cost of Oilmaster dual pumping equipment is surprisingly low. Actually, it amounts to only a few per cent of the cost of drilling a second well. If you are in an area where productive horizons overlie one another and are interested in faster payouts or higher allowables, contact your nearest Oilmaster Representative, or write Fluid Packed Pump Company for complete information on

## oilmaster
## DUAL ZONE
## Pumping Equipment

**FLUID PACKED PUMP COMPANY, P. O. Box 64 • Los Nietos, California**

*Main Office and Plant, Los Nietos, Calif. • Dist. by the National Supply Co., Pittsburgh, Pa. Export: The National Supply Co., Inc., Export Division, 600 Fifth Avenue, New York • Co-Distributors: Berry Supply Store, Beacon Supply Co., Industrial Supply Co.*




# Producing Gas Wells . . . reach new peaks . . . net well gain smallest since 1952.

PRODUCERS OF gas and gas-condensate set new records in 1955—and at the same time reported the smallest net gain in wells since 1952.

Total production averaged 295,000 cubic feet per well per day during 1955, 4000 cubic feet per day more than the previous record years of 1953-54.

There were 73,802 gas and gas-condensate wells in operation at the end of 1955—1607 more than were in operation on the same date in 1954.

Well completions hit a new peak—4266, bettering the previous year by 47 wells. However, a big jump in well abandonments and shut ins—2659 compared to only 247 in 1954—resulted in a net gain drop of 2365 wells. In 1955 there was a net increase of 1607 wells, compared to the net gain of 3972 wells in 1954.

In contrast to the over-all trend, net well gains for the five leading gas producing states (gas-condensate not included) were greater than the 1954 gains over 1953. Only Texas showed a lower net gain with a 398-well increase over 1954, compared to a 473-well increase in 1954 over 1953. Oklahoma remained the same, with a net gain of 200 wells each year. Louisiana and Arkansas had moderate increases, while New Mexico's producing gas wells took a decided jump upward.

Texas, the top producer with 4.5 trillion cubic feet annually reported 161 abandonments and shut-ins while drilling 559 new wells for a net gain total of 398 wells (8557 wells operating at year's end, compared to 8159 in 1954). Louisiana produced 1.3 trillion cubic feet from 2403 wells—a 100-well increase over 1954. 260 new wells were completed and 160 were abandoned or shut in.

New Mexico turned 150 shut-ins into producers and drilled 521 new wells for a 671-well increase over the 1717 wells operating at the end of 1954. Oklahoma reported a 200-well gain over the 1954 total of 4100—and Arkansas showed a 34-well increase over the 1954 total of 202 operating wells.

**U. S. Gas and Gas-Condensate Wells Producing at End of Year, 1954 and 1955**
**Data include: Wells producing gas exclusively; wells producing lease condensate except where shown as yielding plant condensate; no wells producing crude oil; no shut in wells.**

| State or District | END OF 1954 Gas Wells | END OF 1954 Gas-Cond. Wells | END OF 1955 Gas Wells | END OF 1955 Gas-Cond. Wells |
|---|---|---|---|---|
| Arkansas | 202 | 73 | 236 | [6] |
| California | 350 | 83 | 410 | .... |
| San Joaquin | 333 | *83 | 397 | .... |
| Coastal District | 16 | .... | 12 | .... |
| Los Angeles Basin | 1 | .... | 1 | .... |
| Colorado | 75 | .... | 100 | .... |
| Illinois | 25 | .... | 25 | .... |
| Indiana | 400 | .... | 350 | .... |
| Kansas | 4,900 | † | 5,250 | .... |
| Kentucky | 4,000 | .... | 4,100 | .... |
| Louisiana | 2,303 | 1,872 | 2,403 | 1,712 |
| North Louisiana | 2,182 | 840† | 2,287 | 506 |
| South Louisiana | 121 | 1,032† | 116 | 1,206 |
| Michigan | 275 | .... | 303 | .... |
| Mississippi | 225 | 238 | 6 | 219 |
| Missouri | 2 | .... | 2 | .... |
| Montana | 1,000 | † | 1,000 | .... |
| Nebraska | 35 | .... | 30 | 8 |
| New Mexico | 1,717 | 406 | 2,388 | 188 |
| Northwest N.M. | 1,185 | 267* | 1,790 | .... |
| Southeast N.M. | 532 | 139 | 598 | 188 |
| New York | 1,275 | .... | 1,250 | .... |
| Ohio | 6,850 | .... | 6,870 | .... |
| Oklahoma | 4,100 | † | 4,300 | .... |
| Pennsylvania | 16,500 | .... | 16,300 | .... |
| Tennessee | 28 | .... | 28 | .... |
| Texas | 8,159 | 2,707 | 8,557 | 2,959 |
| Dist. 1: S. Central | 36 | 35 | 31 | 41 |
| Dist. 2: Mid. Gulf | 654 | 620 | 729 | 672 |
| Dist. 3: U. Gulf | 607 | 805 | 601 | 858 |
| Dist. 4: L. Gulf-SW | 1,221 | 426 | 1,319 | 449 |
| Dist. 5: E. Central | 48 | 89 | 47 | 94 |
| Dist. 6: Northeast | 1,079 | 405 | 1,101 | 471 |
| Dist. 7-B: N.Cent. | 424 | 41 | 441 | 54 |
| Dist. 7-C: W. Cent. | 25 | 88 | 44 | 87 |
| Dist. 8: West | 189 | 76 | 200 | 121 |
| Dist. 9: North | 88 | 109 | 136 | 92 |
| Dist. 10: Panhandle | 3,788 | 13 | 3,908 | 20 |
| West Virginia | 14,100 | .... | 14,400 | .... |
| Wyoming | 164 | 21 | 159 | 36 |
| Miscellaneous‡ | 110 | .... | 115 | .... |
| Total U. S. | 66,795 | 5,400 | 68,582 | 5,220 |

* Wells yielding condensate through operation of plants.
† Limited number of gas-condensate wells in state included with oil wells in table on another page.
‡ Ala., Md., N.D., S.D., Utah, Va.

## U. S. Producing Gas Wells and Daily Output Per Well, by Years
**(Including gas-condensate wells)**

**Sources: Bureau of Mines except as noted. Output per well obtained by dividing daily average gross production from gas wells for year by average number between wells producing Jan. 1 and Dec. 31.**

| YEAR | Wells Producing at Year End | Changes During Year: [1]Wells Completed | [2]Wells Abandoned | [3]Net Gain in Wells | [4]Mcf. Prod. Per Well Per Day |
|---|---|---|---|---|---|
| 1929 | [5]53,545 | 3,107 | [6] | [6] | [6] |
| 1930 | [5]55,020 | 2,971 | 1,496 | 1,475 | [6] |
| 1931 | [5]55,756 | 2,067 | 1,331 | 736 | [6] |
| 1932 | [5]54,156 | 1,079 | 2,679 | —1,600 | [6] |
| 1933 | [5]53,660 | 1,190 | 1,686 | —496 | [6] |
| 1934 | 54,130 | 1,496 | 1,026 | 470 | [6] |
| 1935 | 53,790 | 1,802 | 2,142 | —340 | [6] |
| 1936 | 54,500 | 2,375 | 1,665 | 710 | 75 |
| 1937 | 55,050 | 2,732 | 2,182 | 550 | 81 |
| 1938 | 53,770 | 2,143 | 3,423 | —1,280 | 79 |
| 1939 | 55,530 | 2,030 | 270 | 1,760 | 92 |
| 1940 | 53,880 | 2,265 | 3,915 | —1,650 | 105 |
| 1941 | 55,500 | 3,279 | 1,659 | 1,620 | 125 |
| 1942 | 56,150 | 2,790 | 2,140 | 650 | 142 |
| 1943 | 57,200 | 2,390 | 1,340 | 1,050 | 155 |
| 1944 | 58,780 | 3,078 | 1,498 | 1,580 | 172 |
| 1945 | 60,600 | 3,192 | 1,372 | 1,820 | 178 |
| 1946 | 62,740 | 3,562 | 1,422 | 2,140 | 169 |
| 1947 | 63,676 | 3,720 | 2,784 | 936 | 163 |
| 1948 | 64,212 | 3,312 | 2,776 | 536 | 196 |
| 1949 | 63,346 | 3,499 | 4,365 | —866 | 214 |
| 1950 | 64,900 | 3,480 | 1,926 | 1,554 | 239 |
| 1951 | 65,100 | 3,542 | 3,342 | 200 | 273 |
| 1952 | 65,450 | 3,693 | 3,343 | 350 | 286 |
| 1953 | 68,223 | 3,806 | 1,033 | 2,773 | 291 |
| 1954 | [7]72,195 | 4,219 | 247 | 3,972 | 291 |
| 1955 | [7]73,802 | 4,266 | 2,659 | 1,607 | 295 |

[1] WORLD OIL data. [2] Wells abandoned or shut in. Minus sign (—) indicates shut in wells put on production. [3] Minus sign (—) indicates decrease in producing wells. [4] Thousand cubic feet. [5] Average during year. [6] Not available.

# NEW LOW COST "K" FOR USE IN SMALL CASING SIZES

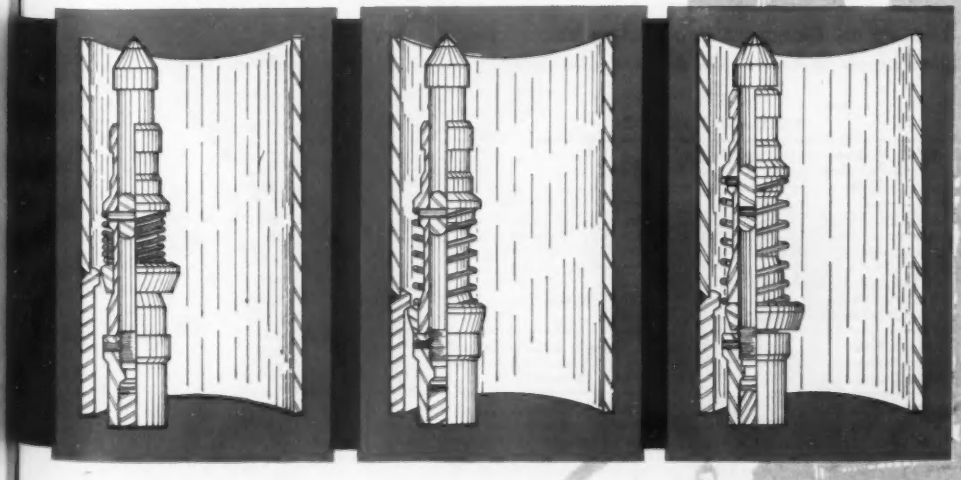
## ALL VALVES SELECTIVELY RETRIEVABLE THROUGH THE TUBING STRING!

For any gas lift installation
- Regular Retrievable
- Dual Retrievable
- Permanent type well completion

**NEW "K" LATCH**— on every "K" valve — positively secures the valve in the mandrel. No sand, cement, or other debris can prevent the operation of this latch.

**DUAL COMPLETION EQUIPMENT** — Pick the best type of installation for your dual producer. Retrievable valve mandrels are available that will satisfy the requirements for lifting two zones in casing as small as 5½" - 17#.

**FOR BAD CASING,** mud in the casing annulus, or gas flowing through the casing annulus, gas lift with the modified dual completion mandrel.



**CAMCO, INC. • 7010 ARDMORE • HOUSTON, TEXAS • JA 6-1361**

# Producing Depth Records . . . South Louisiana again holds record for deepest producer as California well is plugged back.

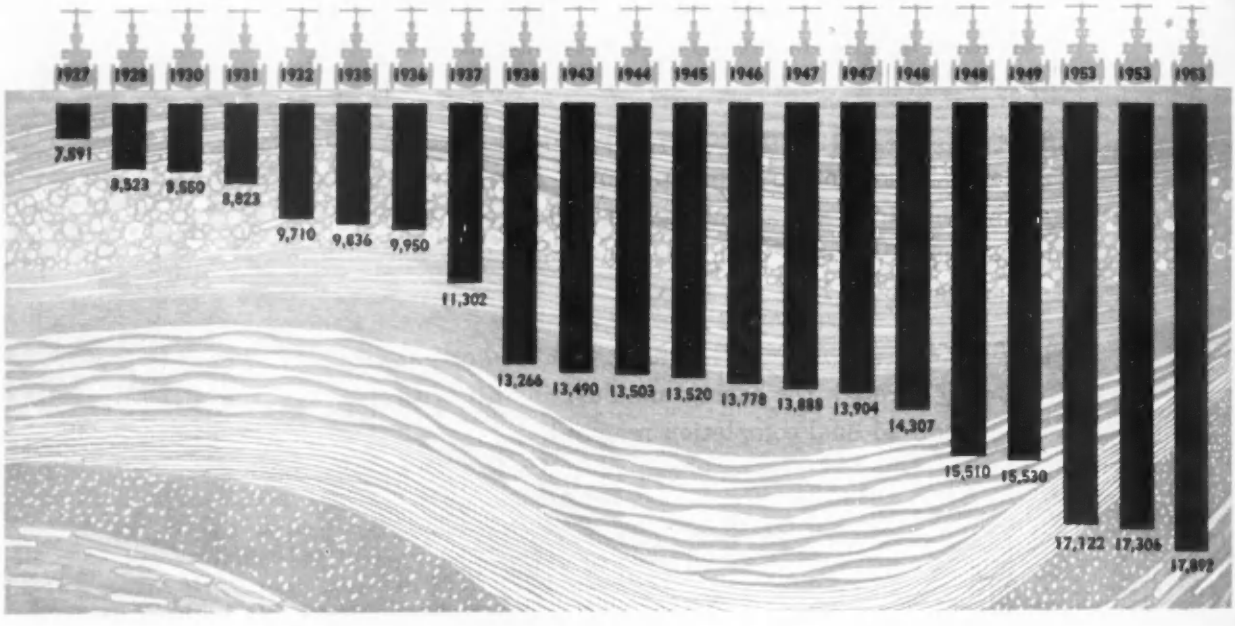
AFTER A TWO-YEAR absence from the top position, South Louisiana again holds the current record for the nation's deepest producing well.

However, the title was taken by default. California's Richfield Oil Corporation Coles Levee "A" 67-29 held the U. S. record of 17,892 feet from 1953 until it was plugged back to 7720 feet last year.

South Louisiana held the record earlier in 1953—in fact, two previous records had been set. Shell's Weeks-Gall Unit 1-1 was completed as a producer from 17,122 feet early in the year, and a short time later Shell's Gonsoulin Minvielle Unit 2 was completed as a South Louisiana producer at 17,306 feet. The Richfield well came in later in the year to set the 1953 record.

The current deepest producer is Shell's C. B. Patout et al 1, Weeks Island field, Iberia Parish, which was completed in 1955 as a condensate

## U. S. PRODUCES OIL FROM BELOW 17,000 FEET




### Holders of Record as Deepest Producing Well in U. S., Since 1927

| Year Drilled | WELL AND LOCATION | Production | Bottom of Pay (Feet) |
|---|---|---|---|
| 1927 | E. J. Miley's Athens 6, Rosecrans field, California | .... | 7,591 |
| 1928 | Texon Oil & Land Co.'s University 1-B, Big Lake field, West Texas | Oil | 8,523 |
| 1930 | Star Petroleum Co.'s Colby 2, Long Beach, California | .... | 8,550 |
| 1931 | Tide Water Associated Oil Co.'s Lloyd 57, Ventura Avenue field, California | Oil | 8,823 |
| 1932 | Tide Water Associated Oil Co.'s Lloyd 83, Ventura Avenue field, California | Oil | 9,710 |
| 1935 | Tide Water Associated Oil Co.'s Lloyd 131, Ventura Avenue field, California | Oil | 9,836 |
| 1936 | The Texas Co.'s Lafitte 5, Lafitte field, South Louisiana | .... | 9,950 |
| 1937 | Union Oil Co.'s Kerneo 85-34, Rio Bravo field, Kern County, California | Oil | 11,302 |
| 1938 | Fohs Oil Co.'s Buckley-Bourg 1, DeLarge field, South Louisiana | *Cond. | 13,266 |
| 1943 | Union Producing Co.-Fohs Oil Co.'s Fitzpatrick-Vizard 1, DeLarge field, South Louisiana | *Cond. | 13,490 |
| 1944 | Union Producing Co.-Fohs Oil Co.'s Buckley-Bourg 2, DeLarge field, South Louisiana | Oil | 13,503 |
| 1945 | Shell Oil Co.'s Smith-State Unit 1-1, Weeks Island field, South Louisiana | Oil | 13,520 |
| 1946 | Shell Oil Co.'s Smith-State Unit 1-2, Weeks Island field, South Louisiana | Oil | 13,778 |
| 1947 | Shell Oil Co.'s Smith-State Unit 1-3, Weeks Island field, South Louisiana | Oil | 13,888 |
| 1947 | The Texas Co.'s LaFourche Basin Levee Dist. 1, Queen Bess Island field, South Louisiana | *Cond. | 13,904 |
| 1948 | Pure Oil Co.'s Unit 1, West Poison Spider field, Wyoming | Oil | 14,307 |
| 1948 | Denver Producing & Refg. Co.'s School Land 1-A, Cogar field, Caddo County, Oklahoma | Gas | 15,510 |
| 1949 | Standard Oil Co. of California's Mushrush 5, Wasco field, Kern County, California | Oil | 15,530 |
| 1953 | Shell Oil Co.'s Weeks-Gall Unit 1-1, Weeks Island field, South Louisiana | Oil | 17,122 |
| 1953 | Shell Oil Co.'s Gonsoulin Minvielle-State Unit 2, Weeks Island field, South Louisiana | Oil | 17,306 |
| 1953 | Richfield Oil Corp.'s Coles Levee "A" 67-29, Coles Levee, North field, California | Oil | 17,892 |

*Gas — Condensate Production.

# One piston tubing anchor keeps tubing in hole longer—cuts well pulling costs

# PAGE* TYPE R TUBING ANCHOR

1. *ONE PISTON TUBING ANCHOR*
2. *PISTON PROTECTED AGAINST WELL EFFLUENTS*
3. *PROPER DISTRIBUTION OF POWER TO CASING*
4. *FIXED SLIPS ELIMINATE GYRATION*

Stop tubing travel with this powerful positive-holding Page type "R" Hydraulic Tubing Anchor. Simplicity of design is an outstanding feature of this tool.

The tubing is correctly suspended in the hole, and kept there longer because anchoring the Page "Tension" way greatly minimizes tubing thread leaks and interior wear between tubing and rods. Pumping cycles are smoothed out as hundreds of dynagraph cards testify.

A single piston which is removable in a matter of minutes is used to power a live slip. This large pressured piston and slip working opposite two unpressured slips utilizes a simple leverage law, producing maximum pressure in the correct locations. This equal distribution of power affords a stability and rigidity that other contact combinations cannot achieve. The piston assembly, made of stainless steel is so designed that it is easily replaceable in the field. Available in all tubing sizes and casing weights. Wire or write for prices and delivery.

**Registered U. S. Patent Office*

THE NAME TO LOOK FOR ON OIL TOOLS

U. S. Pat. No. 2,658,459

1. ONE PISTON ACTUATING ONE LIVE SLIP
2. TWO REPLACEABLE FIXED SLIPS
3. LARGE WATERCOURSES FOR GAS PASSAGE
4. RADIALLY "V" CUT TEETH ASSURES EFFECTIVE HOLDING POWER IN BOTH DIRECTIONS AND LONG SLIP LIFE

PAGE TENSION TOOLS

## PAGE
## OIL TOOLS, INC.
3356 LIME AVENUE
LONG BEACH 7, CALIF.

**DISTRIBUTORS:** Emsco Manufacturing Co., Los Angeles, Calif. and Garland, Texas. All Field Stores.
The Continental Supply Co., Continental Bldg., Dallas, Texas. All Field Stores.

**EXPORT:** The Continental Supply Company, Inc. 45 Rockefeller Plaza, New York 20, N. Y. All Field Stores.

producer from 17,584 feet, 300 feet shallower than the Richfield well.

A major step in deep production may occur during 1956. At the end of January, a South Louisiana well had run casing and was preparing to test much deeper zones. The well, drilled by Richardson and Bass, John W. Mecom, Inc., and Freeport Sulphur Company to 22,570 feet, has indications of production in several horizons below 20,000 feet.

During 1955, two new producers—including the Louisiana well—entered the select group to be listed among the 10 deepest sectional wells. The other was New Mexico's Continental Bell Lake Unit 1-A, producing gas from 15,070 feet—the fifth deepest well in the U. S.

The nation's deepest well in 1949, Standard of California's Mushrush 5, Wasco field, Kern County, California, returned to the top listings as the second deepest well in the country in 1955. Producing oil from 15,530 feet, it became California's deepest producer after the Richfield well was plugged back.

Three more sectional depth records were broken in 1955. The deepest was Zach Brooks Drilling's Donovan 1 in Alabama which was completed as a gas producer from 11,290 feet. Alabama's previous record depth was set in 1952 by Humble's A. W. Moye et ux 5, producing oil from 6117 feet.

The remaining record setters included Phillips' Troy 1-A in the Texas Panhandle, producing oil from 11,290 feet, and Shell's Eagle Springs Unit 15-35, completed as a producer from 7360 feet in Nye County, Nevada.

The five sectional depth records established in 1955 were two less than the number of records broken in 1954 and 1953. However, there were no depth records in the top 10 in 1954. In 1953, three of the four deepest producers ever drilled were completed. Ten sectional records fell in 1952, and 12 were broken in 1951.

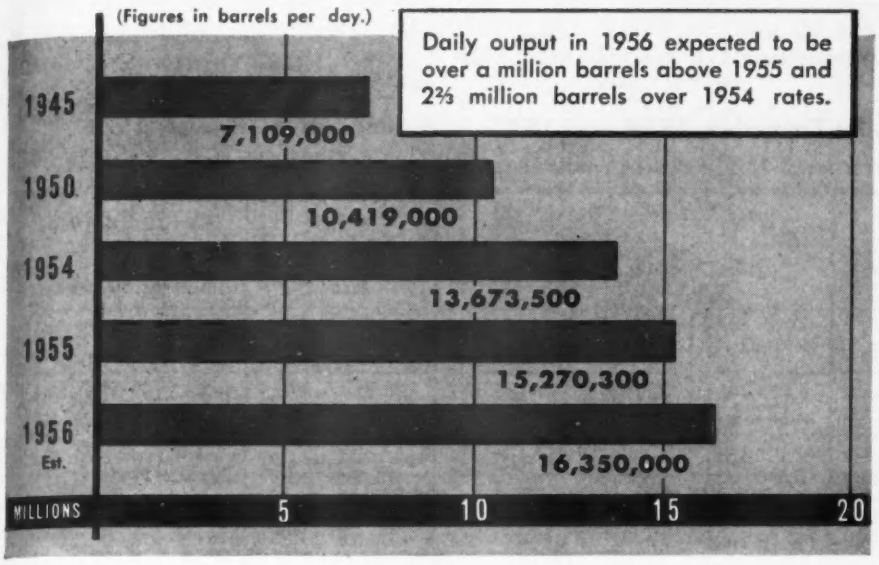
The steady trend toward deeper wells is illustrated by the fact that of the 37 producing areas in the U. S., 23 have recorded new depth records for producing wells during the 1950's.

**Producing Depth Records in U. S., by States and Districts, and by 1,000-Foot Intervals**

| State or District | Bottom of Pay (Feet) | Year Drilled | Well and Location | Producing Formation | Production |
|---|---|---|---|---|---|
| S. Louisiana | **17,584** | 1955 | Shell's C. B. Patout et al 1, Weeks Island field, Iberia Parish | L. Miocene | †Cond. |
| California | **15,530** | 1949 | Standard of Calif.'s Mushrush 5, Wasco field, Kern Co. | Eocene | 0.1 |
| Oklahoma | **15,510** | 1948 | Denver Prod. & Ref. Co.'s School Land 1-A, Cogar field, Caddo Co. | Viola | Gas |
| West Texas | **15,324** | 1953 | Phillips Pet. Co.'s Odom 1-A, Puckett field, Pecos County | Ellenburger | †Cond. |
| N. Mex., S.E. | **15,070** | 1955 | Continental's Bell Lake Unit 1-A, Bell Lake field, Lea Co. | Devonian | Gas |
| Wyoming | **14,307** | 1948 | Pure Oil Co.'s Unit 1, West Poison Spider field, Natrona, Co. | 2nd Frontier | Oil |
| Texas Gulf | **13,950** | 1952 | Phillips Pet. Co's Schenck, 2-A, Chocolate Bayou field, Brazoria Co. | Frio | †Cond. |
| Montana | **12,605** | 1953 | Sun & Phillips' Dynneson 1, Brorson field, Richland County | Red River | Oil |
| Mississippi | **12,487** | 1953 | Carter's S. L. Brown 1, Loring field, Madison Co. | Smackover | Oil |
| East Texas | **12,445** | 1954 | Tide Water's Campbell Unit 1-D, New Hope field, Franklin County | Jurassic | †Cond. |
| Florida | **11,588** | 1948 | Humble's Lee Tidewater Cypress Lbr. Co. 1-B, Suniland field, Collier Co. | L. Cretaceous | Oil |
| S.W. Texas | **11,555** | 1952 | Humble's Robert J. Kleberg, Jr. Tr. 1, Viboras field, Brooks County | Vicksburg | †Cond. |
| Alabama | **11,414** | 1955 | Zach Brooks Drlg's Donovan 1, Citronelle field, Mobile Co. | Rodessa | Oil |
| N. Louisiana | **11,310** | 1953 | A. J. Hodges' Pardee-Callaway et al 1, Ivan field, Webster Co. | Smackover | Oil |
| N. Tex.-Pan‡ | **11,290** | 1955 | Phillips' Troy 1-A, Laketon field, Gray Co. | Ellenburger | Oil |
| N. Dakota | **10,656** | 1954 | Stanolind's New Year Many Ribs 1, Sanish field, McKenzie Co. | Mississippian | Oil |
| Utah | **10,244** | 1952 | Phillips & Carter's Peterson Unit E-11, Roosevelt field, Uintah County | Wasatch | Oil |
| Arkansas | **9,453** | 1952 | Carter's McKamie-Patton Unit C-216-1, Lafayette Co. | Smackover | Oil |
| Colorado | **9,435** | 1950 | Delhi Oil Corp's Barker 5, Barker Dome field, La Plata County | Paradox | Gas |
| N. Mex., N.W. | **8,875** | 1945 | Southern Union's Barker-Ute Indian 11, Barker Creek field, San Juan Co. | Paradox | Gas |
| S. Dakota | **8,691** | 1954 | Shell's State 1-A, Buffalo field, Harding County | Red River | Oil |
| W. Virginia | **8,410** | 1946 | Ohio Oil Co's Kuykendall et al 1, Dry Fork Dist., Tucker County | Oriskany | Gas |
| Pennsylvania | **8,229** | 1949 | Peoples Nat. Gas Co's Wm. Piper 1, Unity Twp., Westmoreland Co. | Devonian | Gas |
| Nevada | **7,360** | 1955 | Shell's Eagle Springs Unit 15-35, Eagle Sps. field, Nye Co. | Tertiary | Oil |
| Nebraska | **7,354** | 1951 | Gulf Oil's Sisson 1, in 18-12n-50w, Sisson field, Kimball County | Dakota "J" | Oil |
| Maryland | **7,100** | 1953 | Snee & Eberly's McCullough Hrs. 1, Garrett Co. | Chert | Gas |
| Michigan | **6,638** | 1952 | Brazos O&G's State-Chester HE-1, 15-29n-2w, Chester Twp., Otsego Co. | Basal Salina | Oil |
| Kansas | **6,278** | 1953 | Alladin Pet's Ide-Larrabee 1, SW NE NE 16-35s-33w, Seward County | Mississippian | Gas |
| Alabama | **6,117** | 1952 | Humble's A. W. Moye et ux 5, Pollard field, Escambia County | Massive | Oil |
| Ohio | **5,880** | 1946 | Frank Lyon's Anita B. Wright 1, Hanover Twp., Columbiana County | Clinton | Gas |
| New York | **5,229** | 1942 | E. Kent Kane's Robert Lewis 1, West Union Township, Steuben County | Oriskany | Gas |
| Kentucky | **5,170** | 1932 | United Carbon Company's Howe 1, Pike County | Devonian | Gas |
| Arizona | **4,976** | 1954 | Shell's Navajo 1, E. Boundary Butte field, Apache County | Hermosa | Gas |
| Illinois | **4,780** | 1943 | Kingwood Oil Co's Shanafelt 24-A, Salem field, Marion County | Trenton | Oil |
| Maryland | **4,456** | 1949 | Cumberland & Allegheny Gas' Elmer N. Beachy S-424, Garrett County | Huntersville | Gas |
| Tennessee | **3,107** | 1954 | Greenup-David et al's Coal Creek 1, in 22-4s-64e, Anderson County | Chattanooga | Gas |
| Indiana | **3,011** | 1946 | H. E. Ledbetter et al's Noble Utley 1, Springfield field, Posey County | McClosky | Oil |
| Missouri | **1,444** | 1940 | Cities Service Oil Co's Jim Cook 1, Tarkio field, Atchison County | Bartlesville | Oil |

† Gas—Condensate Production. ‡ North Texas and Panhandle.

## BIG GROWTH IN WORLD CRUDE PRODUCTION




# World Crude Production . . . to continue growth during 1956. Daily production of 16,350,000 barrels is forecast.

WORLD PRODUCTION of crude oil will continue its phenomenal increase during 1956. Production likely will be one million barrels per day greater than in 1955, and 2⅔ million barrels higher than during 1954.

Daily production of 16,350,000 barrels is forecast for 1956. On this basis, annual output will fall just short of 6 billion barrels. This rate of production would be almost double the volume produced as recently as 1947, and more than 50 percent greater than the 1950 yield.

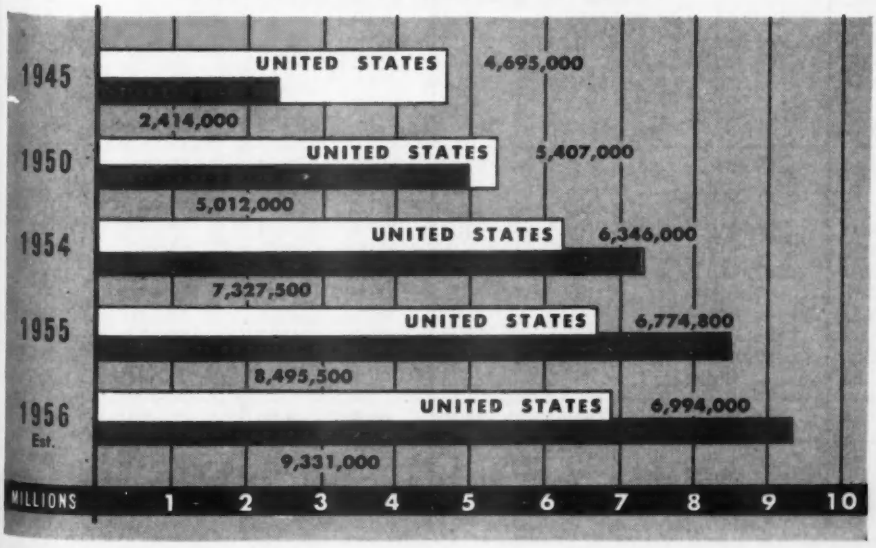
Much of the increase is expected to come from outside the U. S. Production in the U. S. is expected to grow by 219,000 barrels daily, while the remainder of the world is rising 861,000 barrels.

A very sharp growth in crude produced outside of the U. S. has taken place during recent years. Production outside the U. S. is expected to reach 9,356,000 barrels daily in 1956 This would be 50 percent larger than in 1952, and more than double the quantity produced in 1949.

**Big Consumption Growth.** Sharp growth of world crude oil production is based on rapid expansion of consumption. The world is using twice as much oil now as 10 years ago. Prospects indicate there will be no interruption in the miraculous growth for many years.

Demand outside the U. S. probably will average 8¼ million barrels per day in 1956, nearly double the less than 4½ million barrels consumed daily in 1950. During the same period

## CRUDE OIL PRODUCTION OF REST OF WORLD GROWING FASTER THAN U. S.




**Crude Oil Production of World, U. S., and Countries Outside U. S., by Years**

(Source: U. S. Bureau of Mines except part of 1955 and forecast for 1956 outside U. S. estimated by WORLD OIL.)

(THOUSANDS OF BARRELS)

| Year | WORLD Total | WORLD Daily | U.S. Total | U.S. Daily | OUTSIDE U.S. Total | OUTSIDE U.S. Daily |
|---|---|---|---|---|---|---|
| 1918 | 503,515 | 1,378 | 355,928 | 975 | 147,587 | 403 |
| 1919 | 555,875 | 1,523 | 378,367 | 1,037 | 177,508 | 486 |
| 1920 | 688,884 | 1,887 | 442,929 | 1,213 | 245,955 | 674 |
| 1921 | 766,002 | 2,098 | 472,183 | 1,294 | 293,819 | 804 |
| 1922 | 858,898 | 2,353 | 557,531 | 1,528 | 301,367 | 825 |
| 1923 | 1,015,736 | 2,783 | 732,407 | 2,007 | 283,329 | 776 |
| 1924 | 1,014,318 | 2,779 | 713,940 | 1,956 | 300,378 | 823 |
| 1925 | 1,068,933 | 2,928 | 763,743 | 2,092 | 305,190 | 836 |
| 1926 | 1,096,823 | 3,005 | 770,874 | 2,112 | 325,949 | 893 |
| 1927 | 1,262,582 | 3,459 | 901,129 | 2,469 | 361,453 | 990 |
| 1928 | 1,324,774 | 3,629 | 901,474 | 2,469 | 423,300 | 1,160 |
| 1929 | 1,485,867 | 4,071 | 1,007,323 | 2,760 | 478,544 | 1,311 |
| 1930 | 1,410,037 | 3,863 | 898,011 | 2,460 | 512,626 | 1,403 |
| 1931 | 1,372,532 | 3,760 | 851,081 | 2,332 | 521,451 | 1,428 |
| 1932 | 1,309,677 | 3,588 | 785,159 | 2,151 | 524,518 | 1,437 |
| 1933 | 1,422,146 | 3,951 | 905,656 | 2,481 | 536,490 | 1,470 |
| 1934 | 1,522,281 | 4,170 | 908,065 | 2,488 | 614,216 | 1,682 |
| 1935 | 1,654,488 | 4,532 | 996,596 | 2,730 | 657,892 | 1,802 |
| 1936 | 1,791,540 | 4,908 | 1,099,687 | 3,013 | 691,853 | 1,895 |
| 1937 | 2,039,231 | 5,587 | 1,279,160 | 3,505 | 760,071 | 2,082 |
| 1938 | 1,988,041 | 5,446 | 1,214,355 | 3,327 | 773,686 | 2,119 |
| 1939 | 2,086,160 | 5,716 | 1,264,962 | 3,466 | 821,198 | 2,250 |
| 1940 | 2,149,821 | 5,874 | 1,353,214 | 3,697 | 796,607 | 2,177 |
| 1941 | 2,220,657 | 6,084 | 1,402,228 | 3,842 | 818,429 | 2,242 |
| 1942 | 2,093,100 | 5,735 | 1,386,645 | 3,799 | 706,455 | 1,935 |
| 1943 | 2,256,637 | 6,183 | 1,505,613 | 4,125 | 751,034 | 2,058 |
| 1944 | 2,592,289 | 7,083 | 1,677,904 | 4,584 | 914,385 | 2,498 |
| 1945 | 2,594,697 | 7,109 | 1,173,665 | 4,695 | 881,042 | 2,414 |
| 1946 | 2,745,430 | 7,522 | 1,733,939 | 4,751 | 1,011,491 | 2,771 |
| 1947 | 3,022,139 | 8,280 | 1,856,987 | 5,088 | 1,165,152 | 3,192 |
| 1948 | 3,433,234 | 9,380 | 2,020,185 | 5,520 | 1,413,049 | 3,861 |
| 1949 | 3,404,142 | 9,326 | 1,841,940 | 5,046 | 1,562,202 | 4,280 |
| 1950 | 3,803,027 | 10,419 | 1,973,574 | 5,407 | 1,829,453 | 5,012 |
| 1951 | 4,286,801 | 11,745 | 2,247,711 | 6,158 | 2,039,090 | 5,587 |
| 1952 | 4,508,954 | 12,353 | 2,289,836 | 6,274 | 2,219,118 | 6,079 |
| 1953 | 4,770,779 | 13,071 | 2,357,082 | 6,458 | 2,413,697 | 6,613 |
| 1954 | 4,990,899 | 13,673 | 2,316,323 | 6,346 | 2,674,576 | 7,327 |
| 1955 | 5,573,728 | 15,270 | 2,472,827 | 6,775 | 3,100,901 | 8,495 |
| 1956 Est. | 5,984,100 | 16,350 | 2,559,804 | 6,994 | 3,424,296 | 9,356 |

U. S. consumption increased 2¼ million barrels daily.

**Large Middle East Gain.** Much of the increase in world crude production has come from the Middle East area during recent years. The Middle East in 1955 produced 3,212,214 barrels per day, one-fifth of the world's production. Ten years ago the Middle East was producing only 500,000 barrels daily, or 1/12 of the world's output. Another increase in Middle East production can be excepted in 1956.

## World Crude Oil Production, by Countries, 1954 and 1955, and Cumulative Through 1955

(Sources: U. S. Bureau of Mines except 1955 partly from private sources or estimated by WORLD OIL)

| | Annual Production (Thousands of Barrels) | | Daily Average Production (Actual Barrels) | | | Year's Production As Percent of World | | Cumulative Production To January 1, 1956 (Thousands of Barrels) | |
|---|---|---|---|---|---|---|---|---|---|
| Continent and Country | 1954 | 1955 | 1954 | 1955 | % Diff. '54-'55 | 1954 | 1955 | Total | As % of World |
| **North America** | **2,496,071** | **2,689,326** | **6,838,486** | **7,367,946** | **+ 7.7** | **50.01** | **48.25** | **56,092,187** | **62.53** |
| Canada | 96,070 | 126,290 | 263,203 | 345,997 | + 31.5 | 1.92 | 2.26 | 603,590 | 0.67 |
| Cuba | 25 | 369 | 69 | 1,011 | +1365.2 | 0.00 | 0.01 | 2,856 | 0.00 |
| Mexico | 83,653 | 89,840 | 229,184 | 246,134 | + 7.4 | 1.68 | 1.61 | 2,882,874 | 3.22 |
| United States | 2,316,323 | 2,472,827 | 6,346,030 | 6,774,804 | + 6.8 | 46.41 | 44.37 | 52,602.867 | 58.64 |
| **South America** | **810,366** | **901,261** | **2,220,159** | **2,469,185** | **+ 11.2** | **16.23** | **16.16** | **11,346,565** | **12.65** |
| Argentina | 29,650 | 30,300 | 81,232 | 83,013 | + 2.2 | 0.59 | 0.54 | 595,911 | 0.67 |
| Barbados | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 | 0.00 |
| Bolivia | 1,695 | 2,534 | 4,644 | 6,942 | + 49.5 | 0.04 | 0.04 | 11,466 | 0.01 |
| Brazil | 990 | 1,904 | 2,712 | 5,217 | + 92.4 | 0.02 | 0.04 | 6,230 | 0.01 |
| Chile | 1,736 | 2,400 | 4,756 | 6,575 | + 38.2 | 0.03 | 0.04 | 7,694 | 0.00 |
| Colombia | 40,547 | 38,900 | 111,087 | 106,574 | — 4.1 | 0.81 | 0.70 | 701,731 | 0.79 |
| Ecuador | 3,146 | 3,500 | 8,619 | 9,589 | + 11.3 | 0.07 | 0.06 | 64,190 | 0.07 |
| Peru | 17,161 | 17,158 | 47,016 | 47,008 | — 0.02 | 0.34 | 0.31 | 484,326 | 0.54 |
| Trinidad | 23,629 | 24,115 | 64,736 | 66,068 | + 2.1 | 0.47 | 0.43 | 525,288 | 0.58 |
| Venezuela | 691,812 | 780,450 | 1,895,357 | 2,138,199 | + 12.8 | 13.86 | 14.00 | 8,949,721 | 9.98 |
| **Europe** | **530,884** | **638,528** | **1,454,463** | **1,749,375** | **+ 20.3** | **10.64** | **11.46** | **10,802,351** | **12.05** |
| Albania | 1,600 | 2,200 | 4,383 | 6,027 | + 37.5 | 0.04 | 0.04 | 25,662 | 0.03 |
| Austria | 21,000 | 24,200 | 57,534 | 66,301 | + 15.2 | 0.42 | 0.44 | 170,298 | 0.19 |
| Czechoslovakia | 1,100 | 1,300 | 3,014 | 3,562 | + 18.2 | 0.02 | 0.02 | 9,409 | 0.01 |
| France | 3,599 | 5,850 | 9,860 | 16,027 | + 62.5 | 0.07 | 0.11 | 6,812 | 0.01 |
| Germany | 19,008 | 22,200 | 52,076 | 60,821 | + 16.8 | 0.38 | 0.40 | 31,729 | 0.03 |
| Great Britain | 450 | 400 | 1,233 | 1,096 | — 11.1 | 0.01 | 0.00 | 185,683 | 0.21 |
| Hungary | 7,500 | 10,000 | 20,548 | 27,397 | + 33.3 | 0.15 | 0.18 | 79,264 | 0.09 |
| Italy | 535 | 1,400 | 1,466 | 3,835 | + 161.6 | 0.01 | 0.03 | 6,767 | 0.01 |
| Netherlands | 6,535 | 7,120 | 17,904 | 19,507 | + 9.0 | 0.13 | 0.12 | 43,894 | 0.05 |
| Poland | 2,000 | 2,400 | 5,479 | 6,575 | + 20.0 | 0.04 | 0.05 | 289,220 | 0.32 |
| Rumania | 55,000 | 55,000 | 150,683 | 150,684 | ..... | 1.11 | 0.98 | 1,495,586 | 1.67 |
| U.S.S.R. (Russia) | 411,000 | 505,000 | 1,126,017 | 1,383,549 | + 22.9 | 8.23 | 9.06 | 8,449,148 | 9.42 |
| Yugoslavia | 1,557 | 1,458 | 4,266 | 3,994 | — 6.4 | 0.03 | 0.03 | 8,879 | 0.01 |
| **Africa** | **15,225** | **14,196** | **41,712** | **38,893** | **— 6.8** | **0.31** | **0.26** | **235,763** | **0.26** |
| Algeria | 570 | 440 | 1,561 | 1,206 | — 22.8 | 0.01 | 0.01 | 2,226 | 0.00 |
| Egypt | 13,774 | 12,966 | 37,737 | 35,523 | — 5.9 | 0.28 | 0.23 | 228,891 | 0.25 |
| Morocco | 881 | 790 | 2,414 | 2,164 | — 10.4 | 0.02 | 0.02 | 4,646 | 0.01 |
| **Asia, Total** | **1,138,346** | **1,330,409** | **3,118,727** | **3,644,922** | **+ 16.9** | **22.81** | **23.87** | **11,217,167** | **12.50** |
| **Asia, Middle East** | **999,832** | **1,172,469** | **2,739,240** | **3,212,214** | **+ 17.3** | **20.03** | **21.03** | **8,539,573** | **9.52** |
| Bahrain | 10,992 | 10,951 | 30,115 | 30,002 | — 0.4 | 0.22 | 0.19 | 175,835 | 0.19 |
| Iran | 22,400 | 116,382 | 61,369 | 318,852 | + 419.6 | 0.45 | 2.09 | 2,671,735 | 2.98 |
| Iraq | 228,432 | 245,318 | 625,835 | 672,098 | + 7.4 | 4.57 | 4.40 | 1,382,159 | 1.54 |
| Kuwait | 347,319 | 400,000 | 951,550 | 1,095,880 | + 15.2 | 6.96 | 7.18 | 1,824,632 | 2.04 |
| Neutral Zone | 5,995 | 8,000 | 16,425 | 21,918 | + 33.4 | 0.12 | 0.14 | 13,995 | 0.01 |
| Qatar | 36,450 | 41,254 | 99,862 | 113,024 | + 13.2 | 0.73 | 0.74 | 165,011 | 0.19 |
| Saudi Arabia | 347,845 | 349,488 | 952,991 | 957,492 | + 0.5 | 6.97 | 6.27 | 2,304,057 | 2.57 |
| Turkey | 399 | 1,076 | 1,093 | 2,948 | + 169.7 | 0.01 | 0.02 | 2,149 | 0.00 |
| **Asia, Far East** | **138,514** | **157,940** | **379,487** | **432,708** | **+ 14.0** | **2.78** | **2.84** | **2,677,594** | **2.98** |
| Burma | 1,321 | 1,465 | 3,619 | 4,014 | + 10.9 | 0.03 | 0.03 | ..... | ..... |
| India | 2,235 | 2,507 | 6,123 | 6,868 | + 12.2 | 0.04 | 0.04 | 368,370 | 0.41 |
| Pakistan | 1,945 | 2,033 | 5,329 | 5,570 | + 4.5 | 0.04 | 0.04 | ..... | ..... |
| China | 3,000 | 14,000 | 8,219 | 38,356 | + 366.7 | 0.06 | 0.25 | 25,227 | 0.93 |
| Indonesia | 79,432 | 86,251 | 217,620 | 236,302 | + 8.6 | 1.59 | 1.55 | 1,624,815 | 1.81 |
| Japan | 2,124 | 2,268 | 5,819 | 6,213 | + 6.8 | 0.04 | 0.04 | 109,427 | 0.12 |
| New Guinea | 4,045 | 3,431 | 11,082 | 9,400 | — 15.2 | 0.09 | 0.06 | 16,307 | 0.02 |
| Sakhalin | 8,000 | 7,000 | 21,918 | 19,178 | — 12.5 | 0.16 | 0.13 | 130,240 | 0.14 |
| Sarawak-Brunei | 36,377 | 38,950 | 99,662 | 106,711 | + 7.1 | 0.72 | 0.69 | 402,774 | 0.45 |
| Taiwan (Formosa) | 35 | 35 | 96 | 96 | ..... | 0.01 | 0.01 | 434 | 0.00 |
| **Australia–New Zealand** | **7** | **8** | **19** | **22** | **+ 15.8** | **0.00** | **0.00** | **98** | **0.00** |
| **World, Undistributed** | ..... | ..... | ..... | ..... | ..... | ..... | ..... | **1,044** | **0.01** |
| **TOTAL, WORLD** | **4,990,899** | **5,573,728** | **13,673,566** | **15,270,343** | **+ 11.7** | **100.00** | **100.00** | **89,695,175** | **100.00** |

# World Crude Oil Production, By Countries, By Years (Part 1)

(Complete production history of world, in thousands of barrels of 42 U. S. Gallons. Sources: U. S. Bureau of Mines annual reports, *Mineral Resources and Minerals Yearbook*, and monthly reports, International Petroleum Trade and World Petroleum Statistics, except as otherwise indicated.)

## World and North America, 1857-1895

| YEAR | World Total | Percent Produced by U. S. | Canada | United States | Total North America | YEAR | World Total | Percent Produced by U. S. | Canada | United States | Total North America |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1856 | .... | .... | .... | .... | .... | 1876 | 11,051 | 83 | 312 | 9,133 | 9,445 |
| 1857 | 2 | .... | .... | .... | .... | 1877 | 15,754 | 85 | 312 | 13,350 | 13,662 |
| 1858 | 4 | .... | .... | .... | .... | 1878 | 18,417 | 84 | 312 | 15,397 | 15,709 |
| 1859 | 6 | 31 | .... | 2 | 2 | 1879 | 23,601 | 84 | 575 | 19,914 | 20,489 |
| 1860 | 509 | 98 | .... | 500 | 500 | 1880 | 30,018 | 88 | 350 | 26,286 | 26,636 |
| 1861 | 2,131 | 99 | .... | 2,114 | 2,114 | 1881 | 31,993 | 86 | 275 | 27,661 | 27,936 |
| 1862 | 3,092 | 99 | 12 | 3,057 | 3,069 | 1882 | 35,704 | 85 | 275 | 30,350 | 30,625 |
| 1863 | 2,763 | 94 | 83 | 2,611 | 2,694 | 1883 | 30,255 | 78 | 250 | 23,450 | 23,700 |
| 1864 | 2,304 | 92 | 90 | 2,116 | 2,206 | 1884 | 35,969 | 67 | 250 | 24,218 | 24,468 |
| 1865 | 2,718 | 92 | 110 | 2,498 | 2,608 | 1885 | 26,765 | 59 | 250 | 21,859 | 22,109 |
| 1866 | 3,899 | 92 | 175 | 3,598 | 3,773 | 1886 | 47,243 | 59 | 584 | 28,065 | 28,649 |
| 1867 | 3,709 | 90 | 190 | 3,347 | 3,537 | 1887 | 47,807 | 59 | 526 | 28,283 | 28,809 |
| 1868 | 3,990 | 91 | 200 | 3,646 | 3,846 | 1888 | 52,165 | 53 | 695 | 27,612 | 28,307 |
| 1869 | 4,696 | 90 | 220 | 4,215 | 4,435 | 1889 | 61,507 | 57 | 705 | 35,164 | 35,869 |
| 1870 | 5,799 | 91 | 250 | 5,261 | 5,511 | 1890 | 76,633 | 60 | 795 | 45,824 | 46,619 |
| 1871 | 5,730 | 91 | 270 | 5,205 | 5,475 | 1891 | 91,100 | 60 | 755 | 54,293 | 55,048 |
| 1872 | 6,877 | 92 | 308 | 6,293 | 6,601 | 1892 | 88,739 | 57 | 780 | 50,515 | 51,295 |
| 1873 | 10,838 | 91 | 365 | 9,894 | 10,259 | 1893 | 92,038 | 53 | 798 | 48,431 | 49,229 |
| 1874 | 11,933 | 92 | 169 | 10,927 | 11,096 | 1894 | 89,337 | 55 | 829 | 49,344 | 50,173 |
| 1875 | 9,977 | 88 | 220 | 8,788 | 9,008 | 1895 | 103,692 | 51 | 726 | 52,892 | 53,618 |

## World and North America, 1896 to Now

| YEAR | WORLD TOTAL | Percent Produced by U.S. | NORTH AMERICA | | | | | South America, Since Beginning in 1896 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Canada | Mexico | United States | Cuba | Total North America | Argentina | Barbados | Bolivia | Brazil | Chile | Colombia | Ecuador | Peru | Trinidad | Venezuela | Total South America |
| 1896 | 114,199 | 53 | 727 | ..... | 60,960 | ..... | 61,687 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 47 | ..... | ..... | 47 |
| 1897 | 121,992 | 50 | 710 | ..... | 60,476 | ..... | 61,186 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 71 | ..... | ..... | 71 |
| 1898 | 124,979 | 44 | 758 | ..... | 55,364 | ..... | 56,122 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 71 | ..... | ..... | 71 |
| 1899 | 131,147 | 44 | 808 | ..... | 57,071 | ..... | 57,879 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 89 | ..... | ..... | 89 |
| 1900 | 149,137 | 43 | 913 | ..... | 63,621 | ..... | 64,534 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 274 | ..... | ..... | 274 |
| 1901 | 167,440 | 41 | 757 | 10 | 69,389 | ..... | 70,156 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 275 | ..... | ..... | 275 |
| 1902 | 181,809 | 49 | 531 | 40 | 88,767 | ..... | 89,338 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 287 | ..... | ..... | 287 |
| 1903 | 194,879 | 52 | 487 | 75 | 100,461 | ..... | 101,023 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 278 | ..... | ..... | 278 |
| 1904 | 217,948 | 54 | 553 | 126 | 117,081 | ..... | 117,760 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 290 | ..... | ..... | 290 |
| 1905 | 215,091 | 63 | 634 | 251 | 134,717 | ..... | 135,602 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 373 | ..... | ..... | 373 |
| 1906 | 213,263 | 59 | 569 | 502 | 126,494 | ..... | 127,565 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 531 | ..... | ..... | 531 |
| 1907 | 263,957 | 63 | 789 | 1,005 | 166,095 | ..... | 167,889 | B | ..... | ..... | ..... | ..... | ..... | ..... | 751 | ..... | ..... | 751 |
| 1908 | 285,287 | 63 | 528 | 3,933 | 178,527 | ..... | 182,988 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | 945 | B | ..... | 957 |
| 1909 | 298,709 | 61 | 421 | 2,714 | 183,171 | ..... | 186,306 | 18 | ..... | ..... | ..... | ..... | ..... | ..... | 1,411 | 57 | ..... | 1,488 |
| 1910 | 327,763 | 64 | 316 | 3,634 | 209,557 | ..... | 213,507 | 20 | ..... | ..... | ..... | ..... | ..... | ..... | 1,258 | 143 | ..... | 1,421 |
| 1911 | 344,361 | 64 | 291 | 12,553 | 220,449 | ..... | 233,293 | 13 | ..... | ..... | ..... | ..... | ..... | ..... | 1,465 | 285 | ..... | 1,763 |
| 1912 | 352,443 | 63 | 243 | 16,558 | 222,935 | ..... | 239,736 | 47 | ..... | ..... | ..... | ..... | ..... | ..... | 1,752 | 437 | ..... | 2,236 |
| 1913 | 385,345 | 64 | 228 | 25,696 | 248,446 | ..... | 274,370 | 131 | ..... | ..... | ..... | ..... | ..... | ..... | 2,071 | 504 | ..... | 2,706 |
| 1914 | 407,544 | 65 | 215 | 26,235 | 265,763 | ..... | 292,213 | 276 | ..... | ..... | ..... | ..... | ..... | ..... | 1,837 | 644 | ..... | 2,757 |
| 1915 | 432,033 | 65 | 215 | 32,911 | 281,104 | ..... | 314,230 | 513 | ..... | ..... | ..... | ..... | ..... | ..... | 2,579 | 750 | ..... | 3,842 |
| 1916 | 457,500 | 66 | 198 | 40,546 | 300,767 | ..... | 341,511 | 867 | ..... | ..... | ..... | ..... | ..... | ..... | 2,593 | 929 | ..... | 4,389 |
| 1917 | 502,891 | 67 | 214 | 55,293 | 335,316 | ..... | 390,823 | 1,218 | ..... | ..... | ..... | ..... | ..... | 57 | 2,577 | 1,602 | 120 | 5,574 |
| 1918 | 503,515 | 71 | 305 | 63,828 | 355,928 | ..... | 420,061 | 1,353 | ..... | ..... | ..... | ..... | ..... | C60 | 2,527 | 2,082 | 333 | 6,355 |
| 1919 | 555,875 | 68 | 241 | 87,073 | 378,367 | ..... | 465,681 | 1,331 | ..... | ..... | ..... | ..... | ..... | C60 | 2,628 | 1,841 | 425 | 6,285 |
| 1920 | 688,884 | 64 | 196 | 157,069 | 442,929 | ..... | 600,194 | 1,651 | ..... | ..... | ..... | ..... | ..... | C60 | 2,817 | 2,083 | 457 | 7,068 |
| 1921 | 766,002 | 62 | 188 | 193,398 | 472,183 | ..... | 665,769 | 2,036 | ..... | ..... | ..... | ..... | 67 | C60 | 3,699 | 2,354 | 1,433 | 9,649 |
| 1922 | 858,898 | 65 | 179 | 182,278 | 557,531 | ..... | 739,988 | 2,866 | ..... | ..... | ..... | ..... | 323 | C60 | 5,314 | 2,445 | 2,201 | 13,209 |
| 1923 | 1,015,736 | 72 | 170 | 149,585 | 732,407 | ..... | 882,162 | 3,400 | ..... | ..... | ..... | ..... | 425 | 87 | 5,699 | 3,051 | 4,201 | 16,863 |
| 1924 | 1,014,318 | 70 | 161 | 139,678 | 713,940 | ..... | 853,779 | 4,639 | ..... | ..... | ..... | ..... | 445 | C100 | 8,379 | 4,057 | 9,042 | 26,662 |
| 1925 | 1,068,933 | 71 | 332 | 115,515 | 763,743 | ..... | 879,590 | 6,336 | ..... | ..... | ..... | ..... | 1,007 | 160 | 9,232 | 4,387 | 19,687 | 40,809 |
| 1926 | 1,098,823 | 70 | 364 | 90,421 | 770,874 | ..... | 861,659 | 7,851 | ..... | ..... | ..... | ..... | 6,444 | 214 | 10,762 | 4,971 | 36,911 | 67,153 |
| 1927 | 1,262,582 | 71 | 477 | 64,121 | 901,129 | ..... | 965,727 | 8,630 | ..... | ..... | ..... | ..... | 15,014 | 537 | 10,127 | 5,380 | 63,134 | 102,822 |
| 1928 | 1,324,774 | 68 | 624 | 50,151 | 901,474 | ..... | 952,249 | 9,070 | ..... | ..... | ..... | ..... | 19,897 | 1,084 | 12,006 | 7,684 | 105,749 | 155,490 |
| 1929 | 1,485,867 | 68 | 1,117 | 44,688 | 1,007,323 | ..... | 1,053,128 | 9,391 | ..... | B | ..... | ..... | 20,385 | 1,381 | 13,422 | 8,716 | 137,472 | 190,767 |
| 1930 | 1,410,037 | 64 | 1,522 | 39,530 | 898,011 | ..... | 939,063 | 9,002 | ..... | 56 | ..... | ..... | 20,346 | 1,553 | 12,449 | 9,419 | 136,669 | 189,494 |
| 1931 | 1,372,532 | 62 | 1,543 | 33,039 | 851,081 | ..... | 885,663 | 11,709 | ..... | 25 | ..... | ..... | 18,237 | 1,762 | 10,089 | 9,744 | 116,613 | 168,179 |
| 1932 | 1,309,677 | 60 | 1,044 | 32,805 | 785,159 | ..... | 819,008 | 13,139 | ..... | 44 | ..... | ..... | 16,414 | 1,597 | 9,899 | 10,126 | 116,541 | 167,760 |
| 1933 | 1,442,146 | 63 | 1,145 | 34,001 | 905,656 | 23 | 940,825 | 13,691 | ..... | 112 | ..... | ..... | 13,158 | 1,620 | 13,257 | 9,561 | 117,720 | 169,119 |
| 1934 | 1,522,288 | 60 | 1,417 | 38,172 | 908,065 | 28 | 947,682 | 14,024 | ..... | 159 | ..... | ..... | 17,341 | 1,637 | 16,314 | 10,894 | 136,103 | 196,472 |
| 1935 | 1,654,495 | 60 | 1,447 | 40,241 | 996,596 | 47 | 1,038,331 | 14,297 | ..... | 164 | ..... | ..... | 17,598 | 1,732 | 17,067 | 11,671 | 148,254 | 210,783 |
| 1936 | 1,791,546 | 61 | 1,500 | 41,028 | 1,099,687 | 62 | 1,142,277 | 15,458 | ..... | 105 | ..... | ..... | 18,756 | 1,942 | 17,593 | 13,237 | 154,794 | 221,885 |
| 1937 | 2,039,231 | 63 | 2,944 | 46,907 | 1,279,160 | 33 | 1,329,044 | 16,355 | ..... | 122 | ..... | ..... | 20,599 | 2,161 | 17,457 | 15,503 | 186,230 | 258,427 |
| 1938 | 1,988,041 | 61 | 6,966 | 38,506 | 1,214,355 | 78 | 1,259,905 | 17,076 | ..... | 226 | ..... | ..... | 21,582 | 2,246 | 15,839 | 17,737 | 188,174 | 262,880 |
| 1939 | 2,086,160 | 60.6 | 7,838 | 42,898 | 1,264,962 | 112 | 1,315,810 | 18,613 | ..... | 215 | ..... | ..... | 23,857 | 2,313 | 13,508 | 19,270 | 206,470 | 284,246 |
| 1940 | 2,149,821 | 62.9 | 8,591 | 44,036 | 1,353,214 | 142 | 1,405,983 | 20,609 | ..... | 288 | 2 | ..... | 25,593 | 2,349 | 12,126 | 22,227 | 185,570 | 268,764 |
| 1941 | 2,220,657 | 63.1 | 10,134 | 42,196 | 1,402,228 | 150 | 1,454,708 | 21,873 | ..... | 235 | 3 | ..... | 24,553 | 1,557 | 11,935 | 20,506 | 228,430 | 309,092 |
| 1942 | 2,093,100 | 66.2 | 10,365 | 34,815 | 1,386,645 | 151 | 1,431,976 | 23,704 | 2 | 308 | 33 | ..... | 10,487 | 2,278 | 13,629 | 22,069 | 147,675 | 220,185 |
| 1943 | 2,256,637 | 66.7 | 10,052 | 35,163 | 1,505,613 | 107 | 1,550,935 | 27,714 | 2 | 334 | 48 | ..... | 13,261 | 2,315 | 14,654 | 21,385 | 177,631 | 257,344 |
| 1944 | 2,592,289 | 64.7 | 10,099 | 38,203 | 1,677,904 | 109 | 1,726,315 | 24,230 | 1 | 314 | 58 | ..... | 22,291 | 2,967 | 14,389 | 22,139 | 257,046 | 343,435 |
| 1945 | 2,594,697 | 66.0 | 8,483 | 43,547 | 1,713,655 | 149 | 1,765,834 | 22,881 | 2 | 382 | 79 | ..... | 22,449 | 2,664 | 13,744 | 21,093 | 323,156 | 406,450 |
| 1946 | 2,745,430 | 63.2 | 7,586 | 49,235 | 1,733,939 | 269 | 1,791,029 | 20,604 | 1 | 363 | 67 | ..... | 22,118 | 2,323 | 12,468 | 20,233 | 388,486 | 466,663 |
| 1947 | 3,022,139 | 61.4 | 7,692 | 56,284 | 1,856,987 | 300 | 1,921,263 | 21,846 | B | 377 | 97 | ..... | 24,794 | 2,282 | 12,764 | 20,521 | 434,905 | 517,586 |
| 1948 | 3,433,225 | 58.8 | 12,287 | 58,508 | 2,020,185 | 159 | 2,091,139 | 23,734 | ..... | 464 | 144 | ..... | 23,792 | 2,563 | 14,069 | 20,111 | 490,015 | 574,892 |
| 1949 | 3,404,019 | 54.1 | 21,305 | 60,910 | 1,841,940 | 206 | 1,924,361 | 22,589 | ..... | 678 | 109 | ..... | 29,722 | 2,617 | 14,790 | 20,617 | 482,316 | 573,438 |
| 1950 | 3,803,027 | 51.9 | 29,044 | 72,443 | 1,973,574 | 156 | 2,075,217 | 23,353 | ..... | 616 | 339 | 629 | 34,059 | 2,632 | 15,077 | 20,632 | 546,783 | 644,120 |
| 1951 | 4,286,801 | 52.4 | 48,097 | 77,312 | 2,247,711 | 128 | 2,373,248 | 24,465 | ..... | 523 | 691 | 759 | 38,403 | 2,708 | 16,110 | 20,843 | 622,216 | 726,713 |
| 1952 | 4,508,954 | 50.9 | 61,210 | 78,903 | 2,289,836 | 36 | 2,429,985 | 24,807 | ..... | 529 | 750 | 906 | 38,677 | 2,839 | 16,403 | 21,258 | 660,254 | 766,444 |
| 1953 | 4,770,779 | 49.4 | 80,899 | 72,440 | 2,357,082 | 17 | 2,510,438 | 28,501 | ..... | 601 | 916 | 1,264 | 40,179 | 2,967 | 15,999 | 22,346 | 644,243 | 757,016 |
| 1954 | 4,990,899 | 46.4 | 96,070 | 83,653 | 2,316,323 | 25 | 2,496,071 | 29,650 | ..... | 1,695 | 990 | 1,736 | 40,547 | 3,146 | 17,161 | 23,629 | 691,812 | 810,366 |
| 1955* | 5,573,728 | 44.4 | 126,290 | 89,840 | 2,472,827 | 369 | 2,689,326 | 30,300 | ..... | 2,534 | 1,904 | 2,400 | 38,900 | 3,500 | 17,158 | 24,115 | 780,450 | 901,261 |
| Total | 89,695,175 | 58.6 | 603,590 | 2,882,874 | 52,602,867 | 2,856 | 56,092,187 | 595,911 | 8 | 11,466 | 6,230 | 7,694 | 701,731 | 64,190 | 484,326 | 525,288 | 8,949,721 | 11,346,565 |

* WORLD OIL from private sources. B Less than 1,000 barrels. C Estimated production.

# World Crude Oil Production, By Countries, By Years (Part 2)

(Complete production history of world, in thousands of barrels of 42 U. S. Gallons. Sources: U. S. Bureau of Mines annual reports, *Mineral Resources and Minerals Yearbook*, and monthly reports, International Petroleum Trade and World Petroleum Statistics, except as otherwise indicated.)

## Asia Since Beginning in 1875

| | ASIA—Middle East | | | | | | | | | ASIA—Far East | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Bahrain | Iran | Iraq | Kuwait | Neutral Zone | Qatar | Saudi Arabia | Turkey | Middle East Total | [B]Burma-India Pakistan Burma | Pakistan | India | China | Indonesia | Japan | New Guinea | Sakhalin | Sarawak-Brunei | Formosa | Total Far East | [F]Total Asia |
| 1874 | | | | | | | | | | | | | | | | | | | | | |
| 1875 | | | | | | | | | | | | | | | 5 | | | | | 5 | 5 |
| 1876 | | | | | | | | | | | | | | | 7 | | | | | 7 | 7 |
| 1877 | | | | | | | | | | | | | | | 10 | | | | | 10 | 10 |
| 1878 | | | | | | | | | | | | | | | 18 | | | | | 18 | 18 |
| 1879 | | | | | | | | | | | | | | | 23 | | | | | 23 | 23 |
| 1880 | | | | | | | | | | | | | | | 26 | | | | | 26 | 26 |
| 1881 | | | | | | | | | | | | | | | 17 | | | | | 17 | 17 |
| 1882 | | | | | | | | | | | | | | | 15 | | | | | 15 | 15 |
| 1883 | | | | | | | | | | | | | | | 20 | | | | | 20 | 20 |
| 1884 | | | | | | | | | | | | | | | 28 | | | | | 28 | 28 |
| 1885 | | | | | | | | | | | | | | | 30 | | | | | 30 | 30 |
| 1886 | | | | | | | | | | | | | | | 38 | | | | | 38 | 37 |
| 1887 | | | | | | | | | | | | | | | 29 | | | | | 29 | 29 |
| 1888 | | | | | | | | | | | | | | | 37 | | | | | 37 | 39 |
| 1889 | | | | | | | | | | | 94 | | | | 53 | | | | | 147 | 147 |
| 1890 | | | | | | | | | | | 118 | | | | 52 | | | | | 170 | 170 |
| 1891 | | | | | | | | | | | 190 | | | | 53 | | | | | 243 | 243 |
| 1892 | | | | | | | | | | | 242 | | | | 69 | | | | | 311 | 311 |
| 1893 | | | | | | | | | | | 299 | | | 600 | 106 | | | | | 1,005 | 1,005 |
| 1894 | | | | | | | | | | | 327 | | | 688 | 173 | | | | | 1,188 | 1,188 |
| 1895 | | | | | | | | | | | 372 | | | 1,216 | 170 | | | | | 1,758 | 1,758 |
| 1896 | | | | | | | | | | | 430 | | | 1,427 | 237 | | | | | 2,094 | 2,094 |
| 1897 | | | | | | | | | | | 546 | | | 2,552 | 262 | | | | | 3,360 | 3,360 |
| 1898 | | | | | | | | | | | 542 | | | 2,964 | 319 | | | | | 3,825 | 3,825 |
| 1899 | | | | | | | | | | | 941 | | | 1,796 | 539 | | | | | 3,276 | 3,276 |
| 1900 | | | | | | | | | | | 1,079 | | | 2,253 | 871 | | | | | 4,203 | 4,203 |
| 1901 | | | | | | | | | | | 1,431 | | | 4,014 | 1,117 | | | | | 6,562 | 6,562 |
| 1902 | | | | | | | | | | | 1,617 | | | 2,430 | 996 | | | | | 5,043 | 5,043 |
| 1903 | | | | | | | | | | | 2,510 | | | 5,770 | 1,209 | | | | | 9,489 | 9,489 |
| 1904 | | | | | | | | | | | 3,385 | | | 6,508 | 1,219 | | | | | 11,112 | 11,113 |
| 1905 | | | | | | | | | | | 4,137 | | | 7,850 | 1,347 | | | | | 13,334 | 13,334 |
| 1906 | | | | | | | | | | | 4,016 | | | 8,181 | 1,564 | | | | | 13,761 | 13,781 |
| 1907 | | | | | | | | | | | 4,344 | | | 9,983 | 1,718 | | | | | 16,045 | 16,048 |
| 1908 | | | | | | | | | | | 5,047 | | | 10,283 | 1,871 | | | | | 17,201 | 17,201 |
| 1909 | | | | | | | | | | | 6,677 | | | 11,042 | 1,887 | | | | | 19,606 | 19,606 |
| 1910 | | | | | | | | | | | 6,138 | | | 11,031 | 1,829 | | | | | 18,998 | 18,998 |
| 1911 | | | | | | | | | | | 6,451 | | | 12,173 | 1,737 | | | | | 20,361 | 20,361 |
| 1912 | | | | | | | | | | | 7,117 | | | 10,846 | 1,659 | | | | | 19,622 | 19,623 |
| 1913 | | 1,857 | | | | | | | 1,857 | | 7,930 | | | 11,172 | 1,940 | | | 141 | | 21,183 | 23,040 |
| 1914 | | 2,910 | | | | | | | 2,910 | | 7,410 | | | 11,422 | 2,636 | | | 318 | | 21,786 | 24,696 |
| 1915 | | 3,616 | | | | | | | 3,616 | | 8,202 | | | 11,920 | 2,928 | | | 392 | | 23,442 | 27,058 |
| 1916 | | 4,477 | | | | | | | 4,477 | | 8,491 | | | 12,547 | 2,963 | | | 629 | | 24,630 | 29,107 |
| 1917 | | 7,147 | | | | | | | 7,147 | | 8,079 | | | 13,180 | 2,861 | | | 542 | | 24,662 | 31,809 |
| 1918 | | 8,623 | | | | | | | 8,623 | | 8,188 | | | 12,778 | 2,441 | | | 504 | | 23,911 | 32,534 |
| 1919 | | 10,139 | | | | | | | 10,139 | | 8,736 | | | 15,508 | 2,238 | | | 596 | | 27,078 | 37,217 |
| 1920 | | 12,230 | | | | | | | 12,230 | | 8,375 | | | 17,529 | 2,221 | | | 1,020 | | 29,145 | 41,375 |
| 1921 | | 16,673 | | | | | | | 16,673 | | 8,734 | | | 16,958 | 2,233 | | 2 | 1,411 | | 29,338 | 46,011 |
| 1922 | | 22,247 | | | | | | | 22,247 | | 8,529 | | | 17,066 | 2,055 | | 7 | 2,849 | | 30,506 | 52,753 |
| 1923 | | 25,230 | | | | | | | 25,230 | | 8,406 | | | 19,870 | 1,804 | | 9 | 3,940 | | 34,029 | 59,259 |
| 1924 | | 32,373 | | | | | | | 32,373 | | 8,416 | | | 20,473 | 1,814 | | 80 | 4,163 | | 34,946 | 67,319 |
| 1925 | | 35,038 | | | | | | | 35,038 | | 8,274 | | | 21,422 | 1,915 | | 87 | 4,257 | | 35,955 | 70,993 |
| 1926 | | 35,842 | | | | | | | 35,842 | | 8,011 | | | 21,243 | 1,785 | | 181 | 4,942 | | 36,162 | 72,004 |
| 1927 | | 39,688 | 338 | | | | | | 40,026 | | 8,032 | | | 27,459 | 1,789 | | 440 | 4,943 | | 42,663 | 82,689 |
| 1928 | | 43,461 | 713 | | | | | | 44,174 | | 8,741 | | | 32,118 | 1,944 | | 677 | [G]5,223 | | 48,703 | 92,877 |
| 1929 | | 42,145 | 798 | | | | | | 42,943 | | 8,747 | | | 39,279 | 2,023 | | [D]1,134 | 5,290 | | 56,473 | 99,416 |
| 1930 | | 45,829 | 913 | | | | | | 46,741 | | 8,292 | | | 41,729 | 1,950 | | [D]1,805 | 4,907 | | 58,683 | 105,424 |
| 1931 | | 44,376 | 830 | | | | | | 45,206 | | 8,200 | | | 35,539 | 2,050 | | 2,734 | 3,854 | | 52,377 | 97,583 |
| 1932 | | 49,471 | 836 | | | | | | 50,307 | | 8,817 | | | 39,001 | 1,630 | | 2,631 | 3,796 | | 55,875 | 106,182 |
| 1933 | 31 | 54,392 | 917 | | | | | | 55,340 | | 8,743 | | | 42,606 | 1,455 | | 2,338 | 4,490 | | 59,632 | 114,973 |
| 1934 | 285 | 57,851 | 7,689 | | | | | | 65,825 | | 10,503 | | | 46,925 | 1,834 | | 2,881 | 5,140 | | 67,283 | 133,108 |
| 1935 | 1,265 | 57,273 | 27,408 | | | | | | 85,946 | 7,181 | [E] | 2,038 | | 47,171 | 2,249 | | 2,545 | 5,546 | | 66,730 | 152,676 |
| 1936 | 4,645 | 62,718 | 30,406 | | | | 20 | | 97,789 | 7,588 | [E] | 1,978 | | 50,025 | 2,440 | | 3,212 | 5,209 | | 70,452 | 168,241 |
| 1937 | 7,762 | 77,804 | 31,836 | | | | 65 | | 117,467 | 7,848 | [E] | 2,162 | | 56,724 | 2,488 | | 3,656 | 6,009 | | 78,887 | 196,354 |
| 1938 | 8,298 | 78,372 | 32,643 | | | | 495 | | 119,808 | 7,538 | [E] | 2,488 | | 57,318 | 2,511 | | [C]3,821 | 6,913 | | 80,589 | 200,397 |
| 1939 | 7,589 | 78,151 | 30,791 | | | | 3,934 | | 120,465 | 7,873 | [E] | 2,327 | 4 | 62,087 | 2,654 | | 4,000 | 7,097 | | 86,042 | 206,507 |
| 1940 | 7,074 | 66,317 | 24,225 | | | | 5,075 | | 102,691 | 7,731 | [E] | 2,302 | 10 | 62,011 | 2,639 | | 4,000 | 7,047 | | 85,740 | 188,431 |
| 1941 | 6,794 | 50,777 | 12,650 | | | | 4,310 | | 74,531 | 7,762 | [E] | 2,899 | 87 | 53,704 | 1,929 | | 4,000 | 6,864 | 62 | 77,307 | 151,838 |
| 1942 | 6,241 | 72,256 | 19,726 | | | | 4,530 | | 102,753 | 2,500 | [E] | 2,792 | 340 | 24,000 | 1,652 | | 4,000 | 3,000 | 48 | 38,332 | 141,085 |
| 1943 | 6,572 | 74,612 | 24,848 | | | | 4,868 | | 110,900 | 1,000 | [E] | 2,735 | 447 | 48,294 | 1,727 | | 5,000 | 4,500 | 38 | 63,741 | 174,641 |
| 1944 | 6,714 | 102,045 | 30,943 | | | | 7,794 | | 147,496 | 750 | [E] | 2,784 | 505 | 22,260 | 1,601 | | 5,000 | 6,000 | 40 | 38,940 | 186,436 |
| 1945 | 7,309 | 130,526 | 35,112 | | | | 21,311 | | 194,258 | 725 | [E] | 2,363 | 484 | 7,600 | 1,544 | | 6,000 | 2,100 | 14 | 20,830 | 215,088 |
| 1946 | 8,010 | 146,819 | 35,665 | 5,931 | | | 59,944 | | 256,369 | 15 | [E] | 2,193 | 513 | 2,100 | 1,343 | | 6,000 | 2,050 | 16 | 14,230 | 270,599 |
| 1947 | 9,411 | 154,998 | 35,834 | 16,225 | | | 89,852 | | 306,320 | 59 | 356 | 1,863 | 374 | 8,020 | 1,276 | | [C]7,000 | 12,970 | 22 | 31,940 | 338,260 |
| 1948 | 10,915 | 190,384 | 26,115 | 46,500 | | | 142,853 | 13 | 416,780 | 341 | 490 | 1,875 | 533 | 31,765 | 1,122 | 135 | 7,000 | 20,124 | 23 | 63,408 | 480,188 |
| 1949 | 10,985 | 204,712 | 30,957 | 90,000 | | 750 | 174,008 | 95 | 511,507 | 248 | 824 | 1,906 | 730 | 43,206 | 1,353 | 1,726 | 7,000 | 25,108 | 22 | 82,240 | 593,747 |
| 1950 | 11,016 | 242,475 | 49,726 | 125,722 | | 12,268 | 199,547 | 108 | 640,862 | 450 | 1,281 | 1,867 | 800 | 48,400 | 2,066 | 1,748 | 7,000 | 30,958 | 23 | 94,675 | 735,537 |
| 1951 | 10,994 | 127,600 | 65,122 | 204,910 | | 18,009 | 277,963 | 129 | 704,727 | 645 | 1,348 | 1,949 | 900 | 55,453 | 2,337 | 1,746 | 7,000 | 37,506 | 21 | 109,118 | 813,402 |
| 1952 | 11,004 | 10,100 | 140,799 | 273,433 | | 25,254 | 301,861 | 146 | 762,597 | 649 | 1,580 | 1,900 | 730 | 62,495 | 2,134 | 1,725 | 7,000 | 38,251 | 18 | 117,045 | 879,944 |
| 1953 | 10,978 | 9,400 | 210,268 | 314,592 | | 31,025 | 308,294 | 179 | 884,736 | 1,073 | 1,762 | 2,215 | 1,500 | 75,148 | 2,101 | 1,751 | 7,000 | 36,848 | 17 | 129,415 | 1,014,151 |
| 1954 | 10,992 | 22,400 | 228,432 | 347,319 | 5995 | 36,450 | 347,845 | 399 | 999,832 | 1,321 | 1,945 | 2,235 | 3,000 | 79,432 | 2,124 | 4,045 | 8,000 | 36,377 | 35 | 138,514 | 1,138,346 |
| 1955* | 10,951 | 116,382 | 245,318 | 400,000 | 8000 | 41,254 | 349,488 | 1076 | 1,172,469 | 1,465 | 2,033 | 2,507 | 14,000 | 86,251 | 2,268 | 3,431 | 7,000 | 38,950 | 35 | 157,940 | 1,330,409 |
| Total | 175,835 | 2,671,735 | 1,382,159 | 1,824,632 | 13995 | 165,011 | 2,304,057 | 2149 | 8,539,573 | 368,370 | | | 25,227 | 1,624,815 | 109,427 | 16,307 | 130,240 | 402,774 | 434 | 2,677,594 | 11,217,167 |

[B] Less than 1,000 barrels. [C] Estimated production [D] Year ended September 30. [E] Separation of British India and Burma prior to 1935 not available from U.S. Bureau of Mines data used here. Data by Dudley Stamp in "Petroleum Development and Technology, 1933" and in A.I.M.E. "Transactions" indicate cumulative through 1934 as follows: Burma 184,528, India 20,756. Pakistan included with India prior to 1947. [F] Exclusive of U.S.S.R. fields in Asia, other than Sakhalin, which are included with U.S.S.R. in Europe. [G] Beginning of production in Brunei. [H] Formosa included with Japan prior to 1941. * WORLD OIL from private sources.

# World Crude Oil Production, By Countries, By Years (Part 3)

(Complete production history of world, in thousands of barrels of 42 U. S. Gallons. Sources: U. S. Bureau of Mines annual reports, *Mineral Resources and Minerals Yearbook*, and monthly reports, International Petroleum Trade and World Petroleum Statistics, except as otherwise indicated.)

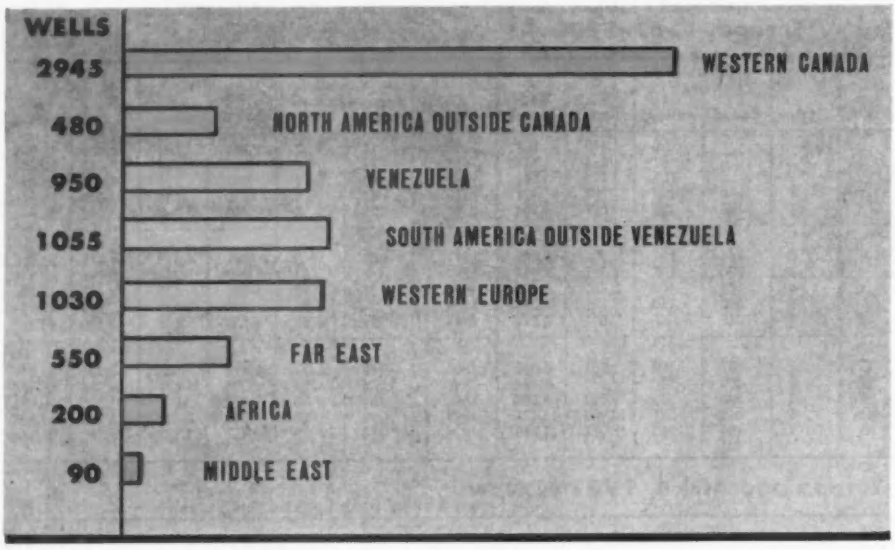
## Europe, 1857-1900

| YEAR | Italy | Rumania | [F] U.S.S.R. (Russia) | [F] Total Europe | YEAR | Germany | Italy | Poland | Rumania | [F] U.S.S.R. (Russia) | [F] Total Europe | YEAR | Germany | Italy | Poland | Rumania | [F] U.S.S.R. (Russia) | [F] Total Europe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1856 | .... | .. . | .... | .... | 1871 | .... | [B] | .... | 90 | 165 | 255 | 1886 | 74 | 2 | 306 | 168 | 18,006 | 18,556 |
| 1857 | .... | 2 | .... | 2 | 1872 | .... | [B] | .... | 91 | 185 | 276 | 1887 | 74 | 1 | 344 | 182 | 18,368 | 18,969 |
| 1858 | .... | 4 | .... | 4 | 1873 | .... | [B] | .... | 104 | 475 | 579 | 1888 | 85 | 1 | 467 | 219 | 23,049 | 23,821 |
| 1859 | .... | 4 | .... | 4 | 1874 | .... | 1 | 150 | 103 | 583 | 837 | 1889 | 68 | 1 | 515 | 298 | 24,609 | 25,491 |
| 1860 | .... | 9 | .... | 9 | 1875 | .... | 1 | 153 | 108 | 697 | 964 | 1890 | 108 | 3 | 659 | 383 | 28,691 | 29,844 |
| 1861 | [B] | 17 | .... | 17 | 1876 | .... | 3 | 164 | 111 | 1,321 | 1,599 | 1891 | 109 | 3 | 631 | 488 | 34,573 | 35,909 |
| 1862 | [B] | 23 | .... | 23 | 1877 | .... | 3 | 170 | 108 | 1,801 | 2,082 | 1892 | 101 | 18 | 646 | 593 | 35,775 | 37,133 |
| 1863 | [B] | 28 | 41 | 69 | 1878 | .... | 4 | 176 | 109 | 2,401 | 2,690 | 1893 | 100 | 19 | 693 | 535 | 40,457 | 41,804 |
| 1864 | [B] | 33 | 65 | 98 | 1879 | .... | 3 | 215 | 110 | 2,761 | 3,089 | 1894 | 123 | 21 | 949 | 508 | 36,375 | 37,976 |
| 1865 | 2 | 39 | 67 | 108 | 1880 | .... | 9 | 2 | 229 | 115 | 3,001 | 2,356 | 1895 | 121 | 26 | 1,453 | 576 | 46,140 |
| 1866 | 1 | 42 | 83 | 126 | 1881 | .... | 29 | 1 | 287 | 122 | 3,601 | 4,040 | 1896 | 145 | 18 | 2,444 | 543 | 47,221 |
| 1867 | 1 | 51 | 120 | 172 | 1882 | .... | 58 | 2 | 330 | 136 | 4,538 | 5,064 | 1897 | 166 | 14 | 2,226 | 571 | 54,399 |
| 1868 | [B] | 56 | 88 | 144 | 1883 | .... | 27 | 2 | 365 | 139 | 6,002 | 6,535 | 1898 | 184 | 15 | 2,376 | 776 | 61,610 |
| 1869 | [B] | 59 | 202 | 261 | 1884 | .... | 46 | 3 | 408 | 211 | 10,805 | 11,473 | 1899 | 192 | 16 | 2,314 | 1,426 | 65,955 |
| 1870 | [B] | 84 | 204 | 288 | 1885 | .... | 41 | 2 | 465 | 193 | 13,925 | 14,626 | 1900 | 358 | 12 | 2,347 | 1,629 | 75,780 |

## Europe and Africa, 1901 to Now

| | EUROPE | | | | | | | | | | | | AFRICA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | Albania | Austria | Czecho-slovakia | Great Britain | France | Ger-many | Hun-gary | Italy | Nether-lands | Poland | Ru-mania | [F] U.S.S.R. (Russia) | Yugo-slavia | [F] Total Europe | Egypt | Al-geria | Mo-rocco | Total Africa | Austra-lia-N. Zealand | Rest of World |
| 1901 | ..... | ..... | ..... | ..... | ..... | 314 | ..... | 16 | ..... | 3,251 | 1,678 | 85,168 | ..... | 90,427 | ..... | ..... | ..... | ..... | ..... | 20 |
| 1902 | ..... | ..... | ..... | ..... | ..... | 354 | ..... | 19 | ..... | 4,142 | 2,060 | 80,540 | ..... | 87,115 | ..... | ..... | ..... | ..... | ..... | 20 |
| 1903 | ..... | ..... | ..... | ..... | ..... | 446 | ..... | 18 | ..... | 5,235 | 2,763 | 75,591 | ..... | 84,053 | ..... | ..... | ..... | ..... | ..... | 36 |
| 1904 | ..... | ..... | ..... | ..... | ..... | 637 | ..... | 26 | ..... | 5,947 | 3,599 | 78,537 | ..... | 88,746 | ..... | ..... | ..... | ..... | ..... | 40 |
| 1905 | ..... | ..... | ..... | ..... | ..... | 561 | ..... | 44 | ..... | 5,766 | 4,421 | 54,960 | ..... | 65,752 | ..... | ..... | ..... | ..... | ..... | 30 |
| 1906 | ..... | ..... | ..... | ..... | ..... | 579 | ..... | 54 | ..... | 5,468 | 6,378 | 58,897 | ..... | 71,376 | ..... | ..... | ..... | ..... | ..... | 30 |
| 1907 | ..... | ..... | ..... | ..... | ..... | 757 | ..... | 60 | ..... | 8,456 | 8,118 | 61,851 | ..... | 79,242 | ..... | ..... | ..... | ..... | ..... | 30 |
| 1908 | ..... | ..... | ..... | ..... | ..... | 1,009 | ..... | 51 | ..... | 12,612 | 8,252 | 62,187 | ..... | 84,111 | ..... | ..... | ..... | ..... | ..... | 30 |
| 1909 | ..... | ..... | ..... | ..... | ..... | 1,019 | ..... | 42 | ..... | 14,933 | 9,327 | 65,970 | ..... | 91,291 | ..... | ..... | ..... | ..... | ..... | 20 |
| 1910 | ..... | ..... | ..... | ..... | ..... | 1,032 | ..... | 51 | ..... | 12,673 | 9,724 | 70,337 | ..... | 93,817 | ..... | ..... | ..... | ..... | ..... | 20 |
| 1911 | ..... | ..... | ..... | ..... | ..... | 1,017 | ..... | 75 | ..... | 10,519 | 11,108 | 66,184 | ..... | 88,903 | 21 | ..... | ..... | 21 | ..... | 20 |
| 1912 | ..... | ..... | ..... | ..... | ..... | 1,031 | ..... | 54 | ..... | 8,535 | 12,976 | 68,019 | ..... | 90,615 | 214 | ..... | ..... | 214 | ..... | 20 |
| 1913 | ..... | ..... | ..... | ..... | ..... | 857 | ..... | 47 | ..... | 7,818 | 13,555 | 62,834 | ..... | 85,111 | 98 | ..... | ..... | 98 | ..... | 20 |
| 1914 | ..... | ..... | ..... | ..... | ..... | 781 | ..... | 40 | ..... | 6,436 | 12,827 | 67,020 | ..... | 87,104 | 753 | 1 | ..... | 754 | ..... | 20 |
| 1915 | ..... | ..... | ..... | ..... | ..... | 703 | ..... | 44 | ..... | 5,352 | 12,030 | 68,548 | ..... | 86,677 | 212 | 4 | ..... | 216 | ..... | 10 |
| 1916 | ..... | ..... | ..... | ..... | ..... | 656 | ..... | 51 | ..... | 6,587 | 8,945 | 65,817 | ..... | 82,056 | 404 | 8 | ..... | 412 | ..... | 25 |
| 1917 | ..... | ..... | ..... | ..... | [G] | 642 | ..... | 41 | ..... | 6,228 | 3,721 | 63,072 | ..... | 73,704 | 943 | 9 | ..... | 952 | ..... | 29 |
| 1918 | ..... | ..... | ..... | ..... | 363 | 270 | ..... | 35 | ..... | 6,032 | 8,730 | 27,168 | ..... | 42,598 | 1,935 | 7 | ..... | 1,942 | ..... | 25 |
| 1919 | ..... | ..... | 48 | 2 | 334 | 265 | ..... | 35 | ..... | 6,096 | 6,618 | 31,752 | ..... | 45,150 | 1,517 | 5 | ..... | 1,522 | ..... | 20 |
| 1920 | ..... | ..... | 69 | 3 | 356 | 246 | ..... | 35 | ..... | 5,607 | 7,435 | 25,430 | ..... | 39,181 | 1,042 | 4 | ..... | 1,046 | ..... | 20 |
| 1921 | ..... | ..... | 94 | 3 | 389 | 274 | ..... | 32 | ..... | 5,167 | 8,368 | 28,968 | ..... | 43,295 | 1,255 | 3 | ..... | 1,258 | ..... | 20 |
| 1922 | ..... | ..... | 120 | 1 | 496 | 319 | ..... | 31 | ..... | 5,227 | 9,843 | 35,692 | ..... | 51,729 | 1,188 | 9 | ..... | 1,197 | ..... | 23 |
| 1923 | ..... | ..... | 74 | 1 | 494 | 346 | ..... | 34 | ..... | 5,402 | 10,867 | 39,147 | ..... | 56,365 | 1,054 | 9 | ..... | 1,063 | ..... | 24 |
| 1924 | ..... | ..... | 76 | 2 | 497 | 406 | ..... | 39 | ..... | 5,657 | 13,369 | 45,355 | ..... | 65,401 | 1,122 | 11 | ..... | 1,133 | ..... | 24 |
| 1925 | ..... | ..... | 158 | 3 | 459 | 541 | ..... | 61 | ..... | 5,960 | 16,650 | 52,448 | ..... | 76,280 | 1,226 | 12 | ..... | 1,238 | ..... | 23 |
| 1926 | ..... | ..... | 150 | 2 | 478 | 653 | ..... | 41 | ..... | 5,844 | 23,314 | 64,311 | ..... | 94,793 | 1,188 | 9 | ..... | 1,197 | ..... | 17 |
| 1927 | ..... | ..... | 112 | 2 | 504 | 653 | ..... | 47 | ..... | 5,342 | 26,368 | 77,018 | ..... | 110,056 | 1,267 | 8 | ..... | 1,275 | ..... | 12 |
| 1928 | ..... | ..... | 94 | 1 | 512 | 630 | ..... | 46 | ..... | 5,492 | 30,773 | [D]84,745 | ..... | 122,293 | 1,842 | 8 | ..... | 1,850 | ..... | 15 |
| 1929 | ..... | ..... | 93 | ..... | 535 | 704 | ..... | 45 | ..... | 4,988 | 34,758 | [D]99,507 | ..... | 140,630 | 1,868 | 20 | ..... | 1,888 | ..... | 38 |
| 1930 | ..... | ..... | 157 | [B] | 523 | 1,182 | ..... | 59 | ..... | 4,904 | 41,624 | [D]125,555 | ..... | 174,004 | 1,996 | 16 | ..... | 2,012 | ..... | 40 |
| 1931 | ..... | ..... | 134 | [B] | 520 | 1,606 | ..... | 124 | ..... | 4,662 | 49,127 | 162,842 | ..... | 219,015 | 2,038 | [E] | ..... | 2,038 | ..... | 54 |
| 1932 | ..... | ..... | 126 | [B] | 530 | 1,608 | ..... | 208 | ..... | 4,116 | 53,815 | 154,367 | ..... | 214,770 | 1,895 | [E] | 7 | 1,902 | ..... | 62 |
| 1933 | 11 | ..... | 122 | [B] | 562 | 1,665 | ..... | 204 | ..... | 4,072 | 54,020 | 154,840 | ..... | 215,496 | 1,663 | [E] | 7 | 1,670 | ..... | 71 |
| 1934 | 10 | ..... | 178 | [B] | 557 | 2,187 | ..... | 151 | ..... | 3,913 | 62,063 | 174,318 | ..... | 243,377 | 1,546 | [E] | 6 | 1,552 | ..... | 98 |
| 1935 | 41 | 44 | 133 | [B] | 541 | 2,996 | ..... | 119 | ..... | 3,812 | 61,310 | 182,386 | 2 | 251,384 | 1,301 | [E] | 4 | 1,305 | 5 | 4 |
| 1936 | 273 | 50 | 127 | [B] | 503 | 3,115 | ..... | 123 | ..... | 3,789 | 63,659 | 186,206 | 1 | 257,846 | 1,278 | [E] | 4 | 1,282 | 5 | 4 |
| 1937 | 619 | 221 | 123 | [B] | 502 | 3,176 | 16 | 110 | ..... | 3,716 | 52,452 | 193,241 | 4 | 254,180 | 1,196 | [E] | 22 | 1,218 | 4 | 4 |
| 1938 | 752 | 383 | 130 | [B] | 513 | 3,861 | 288 | 101 | ..... | 3,763 | 48,487 | 204,956 | 9 | 263,243 | 1,581 | [E] | 27 | 1,608 | 4 | 4 |
| 1939 | 934 | 1,240 | 120 | ..... | 500 | 4,487 | 1,103 | 91 | ..... | 3,898 | 45,648 | 216,866 | 10 | 274,897 | 4,666 | [E] | 27 | 4,693 | 3 | 4 |
| 1940 | 1,497 | 2,808 | 163 | 124 | 496 | 7,371 | 1,881 | 85 | ..... | 3,891 | 43,168 | 218,600 | 10 | 280,094 | 6,505 | [E] | 27 | 6,532 | 3 | 14 |
| 1941 | 1,334 | 4,238 | 183 | 223 | 414 | 6,303 | 3,183 | 95 | ..... | 1,793 | 40,517 | 238,150 | 10 | 296,443 | 8,546 | [E] | 27 | 8,573 | 3 | ..... |
| 1942 | 1,601 | 5,899 | 271 | 605 | 483 | 5,191 | 5,037 | 101 | ..... | 2,794 | 42,094 | 227,470 | 10 | 291,536 | 8,275 | [E] | 41 | 8,316 | 2 | ..... |
| 1943 | 1,001 | 7,478 | 200 | 839 | 356 | 4,973 | 6,347 | 86 | 1 | 3,500 | 39,182 | 200,750 | 10 | 264,723 | 8,953 | ..... | 39 | 8,992 | 2 | ..... |
| 1944 | 334 | 8,318 | 125 | 703 | 300 | 6,154 | 6,277 | 55 | 12 | 3,000 | 26,191 | 275,000 | 220 | 326,649 | 9,416 | 4 | 32 | 9,452 | 2 | ..... |
| 1945 | 267 | 3,074 | 91 | 532 | 202 | 3,935 | 5,018 | 53 | 41 | 750 | 34,772 | 148,953 | 200 | 197,888 | 9,406 | 2 | 26 | 9,434 | 3 | ..... |
| 1946 | 1,000 | 5,734 | 196 | 412 | 368 | 4,539 | 5,146 | 83 | 435 | 866 | 31,434 | 157,673 | 160 | 208,046 | 9,070 | 1 | 20 | 9,091 | 2 | ..... |
| 1947 | 2,000 | 6,285 | 210 | 351 | 356 | 4,032 | 4,330 | 81 | 1,478 | 951 | 28,552 | 187,463 | 290 | 236,379 | 8,627 | 1 | 21 | 8,649 | 2 | ..... |
| 1948 | 1,500 | 5,149 | 204 | 323 | 369 | 4,489 | 3,647 | 71 | 3,443 | 1,039 | 34,000 | 218,000 | 270 | 273,504 | 13,398 | 1 | 100 | 13,499 | 3 | ..... |
| 1949 | 2,188 | 6,100 | 292 | 338 | 411 | 5,947 | 3,791 | 71 | 4,314 | 1,125 | 33,700 | 337,700 | 470 | 296,447 | 15,997 | 2 | 136 | 16,135 | 8 | ..... |
| 1950 | 2,800 | 10,200 | 292 | 340 | 909 | 8,107 | 3,700 | 63 | 4,897 | 1,205 | 32,000 | 226,200 | 794 | 331,507 | 16,373 | 24 | 305 | 16,702 | 8 | ..... |
| 1951 | 1,200 | 14,600 | 650 | 335 | 2,036 | 9,681 | 3,500 | 136 | 4,942 | 1,502 | 31,000 | 285,000 | 1,067 | 356,519 | 16,311 | 49 | 587 | 16,947 | 7 | ..... |
| 1952 | 1,100 | 20,400 | 740 | 407 | 2,377 | 12,435 | 3,500 | 487 | 4,975 | 1,700 | 33,000 | 322,400 | 1,091 | 416,612 | 16,464 | 357 | 749 | 17,570 | 8 | ..... |
| 1953 | 1,400 | 21,100 | 900 | 410 | 2,555 | 15,505 | 5,000 | 656 | 5,701 | 1,800 | 52,000 | 363,000 | 1,236 | 471,263 | 16,501 | 641 | 761 | 17,903 | 8 | ..... |
| 1954 | 1,600 | 21,000 | 1,100 | 450 | 3,599 | 19,008 | 7,500 | 535 | 6,535 | 2,000 | 55,000 | 411,000 | 1,557 | 530,884 | 13,774 | 570 | 881 | 15,225 | 7 | ..... |
| 1955* | 2,200 | 24,200 | 1,300 | 400 | 5,850 | 22,200 | 10,000 | 1,400 | 7,120 | 2,400 | 55,000 | 505,000 | 1,458 | 638,528 | 12,966 | 440 | 790 | 14,196 | 8 | ..... |
| Total | 25,662 | 170,298 | 9,409 | 6,812 | 31,729 | 185,683 | 79,264 | 6,767 | 43,894 | 289,220 | 1,495,586 | 8,449,148 | 8,879 | 10,802,351 | 228,891 | 2,226 | 4,646 | 235,763 | 98 | 1,044 |

[B] Less than 1,000 barrels. [C] Estimated production. [D] Year ended September 30. [E] No more data available. [F] Includes fields in Russian Asia other than Sakhalin.
[G] France's earlier production credited to Germany. * WORLD OIL from private sources.




# Drilling Outside U. S. . . . to scale

## new peaks in 1956 with Western Canada leading the way with an estimated 6.5 percent increase.

DRILLING IN the free world areas outside the U. S. will reach another new peak in 1956 with the completion of approximately 7675 wells, WORLD OIL forecasts. This anticipated increase in drilling activities would represent a hike of 459 completions, or 6.4 percent over the partially estimated 7216 wells completed in the free world outside the U. S. during 1956. By comparison, 1954 completions totaled 6355 wells.

WORLD OIL's forecast is based on information obtained from a survey of companies operating in Western Canada. This survey includes estimates from firms which drilled more than 50 percent of the completions in Alberta, Saskatchewan, Manitoba, and British Columbia provinces in 1955. Estimates for the remainder of the free world are based on opinions and the actual figures of many officials in companies which operate throughout the world. In addition, much of the data upon which the forecast is made are based on WORLD OIL's appraisal of drilling activity prospects in each region.

**Free World Drilling Prospects**
(Exclusive of U. S. and U.S.S.R. and other Iron Curtain Countries)

| Region | Wells Forecast 1956 | Wells Completed 1955* | 1954 | 1953 |
|---|---|---|---|---|
| Western Canada | **2,945** | 2,766 | 2,271 | 2,212 |
| Eastern Canada | **375** | 375 | 365 | 403 |
| North America Excl. U.S.—Canada | **480** | 440 | 384 | 358 |
| Venezuela | **950** | 900 | 838 | 951 |
| South American Outside Venezuela | **1,055** | 1,025 | 1,055 | 1,139 |
| Western Europe | **1,030** | 900 | 805 | 674 |
| Far East | **550** | 550 | 547 | 244 |
| Africa | **200** | 170 | 153 | 164 |
| Middle East | **90** | 90 | 89 | 97 |
| Total | **7,675** | 7,216 | 6,507 | 6,402 |

* 1955 completions partially estimated in some areas.

**Increased Canadian Drilling.** Western Canadian drilling operations are expected to increase substantially, by 6.5 percent from 1955. WORLD OIL forecasts the completion of 2945 wells this year as compared to 2766 wells during 1955, an increase of 179 wells. On this basis, footage drilled should rise to 12,958,000 feet in 1956 in contrast with 12,141,741 feet drilled during 1955 and 8,964,824 feet in 1954.

Again, this year, Western Canadian drilling is expected to account for more than a third of the wells expected to be completed in free world areas outside the U. S.

No change is anticipated in Eastern Canada's drilling program. As in 1955, completions are again put at 375. Thus, Western and Eastern Canada are expected to account for a total of 3320 completions this year, as compared with 3141 wells last year.

In North America, exclusive of the U. S. and Canada, a 9.1 percent increase in drilling is anticipated this year. Last year, the area accounted for 440 wells, and 1956 completions should rise to 480 wells.

**Some Gain For South America.** Continuing development work and exploratory drilling in Venezuela, it is forecast, will result this year in the completion of 950 wells, 50 more than in 1955.

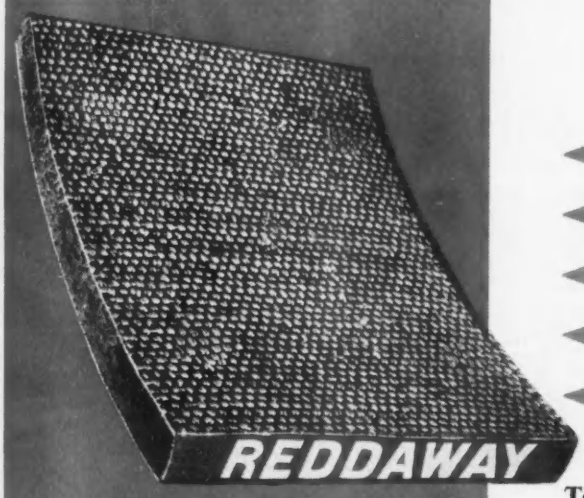
South America, outside Venezuela, is expected to record this year a total of 1055 completions, as compared to 1025 wells in 1955. That is equivalent to a 2.9 percent increase.

**More Drilling In Europe.** Western Europe ranks immediately below Western Canada in the increase in drilling activity as compared to 1955. This year, the region may drill as many as 1030 wells, 130 completions —14.4 percent—more than during the previous year.

Percentage-wise, Africa is expected to show the greatest gain at year's end of any country. Completing 170 wells in 1955, the continent should drill 200 wells this year, 30 more than last year—or a gain of 17.6 percent.

No change is anticipated in the 1955 drilling rate in either the Middle East or the Far East. Ninety wells were drilled in the Middle East in 1955; 550 wells were completed in the Far East.

LUCEY Export




# REDDAWAY

## OIL FIELD

# Brake Blocks

*Give you*

- smoother, safer feed-off
- longer drilling life
- less wear on brake flanges
- faster installation time
- greater operating economy

**Top quality Reddaway Oil Field Brake Blocks and Linings**—metallic or non-metallic—are the choice of experienced drillers all over the world . . . because they provide the greatest combination of values of any comparable product! Smoother, more uniform friction always guarantees even, *safer* feed-off at all times under operator's direct control . . . *allowing more hole drilled per brake horsepower.* Reddaway brake blocks and linings *last longer* . . . put *less wear* and tear on your brake flanges . . . and *stay tight* because their bolt holes are doubly reinforced. Accurate sizing and drilling to close tolerances insure *faster installation, too!* For real operating economy over all types of drilling conditions, join the drillers who *know* . . . order Reddaway Brake Blocks from Lucey Export for your next job.

**Reddaway "QUICK CHANGE" Rotary Blocks Also Available**—Now you can bolt on Reddaway's rugged rotary blocks from the outside without removing the brake band! Crewman simply slides replacement block between band and drum and tightens bolts from the outside of the band. Drum is ready for operation in *70 per cent less time.* Special "SHAKE PROOF" nuts are firmly embedded in the block. The Reddaway is the only *bolt-on* type block that can be installed without removing the band. The brake bands therefore *cannot spring out of shape.* Either "Standard" or "Quick Change"—REDDAWAY BRAKE BLOCKS serve you BETTER!

*Here's why*

### REDDAWAY MEANS BETTER BRAKE LININGS

**Minimum cotton** in asbestos cords eliminates carbonizing and glazing that cause erratic friction and lining failure.

**Deep-penetration curing and impregnating** in vacuum autoclaves produce a denser, more uniform brake block that resists heat, moisture, and oil . . . without excess volatiles that cause unpleasant odors.

**Quality-control engineering** gives precise degree of density and firmness to prevent grabbing and slipping. Standing and running friction are virtually identical, providing perfectly controlled braking on even the heaviest pipe.

**Controlled hardness** keeps metal splinters from imbedding in the lining . . . prevents major cause of brake flange scoring.

**Scientifically designed** brass ferrules and brass reinforcing wires assure double protection against loosening of Reddaway Brake Blocks in service.

**Uniform construction,** designed and drilled exactly to specifications . . . a size to fit every popular rig in current use.

Exclusive Exporters of Reddaway Brake Blocks

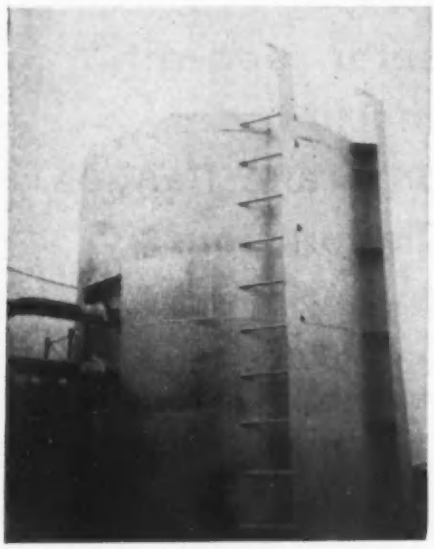
LUCEY Export

233 BROADWAY, NEW YORK 7, N. Y.

# DRILLING HINTS

These **How-To-Do-It** Ideas Can Save You Money

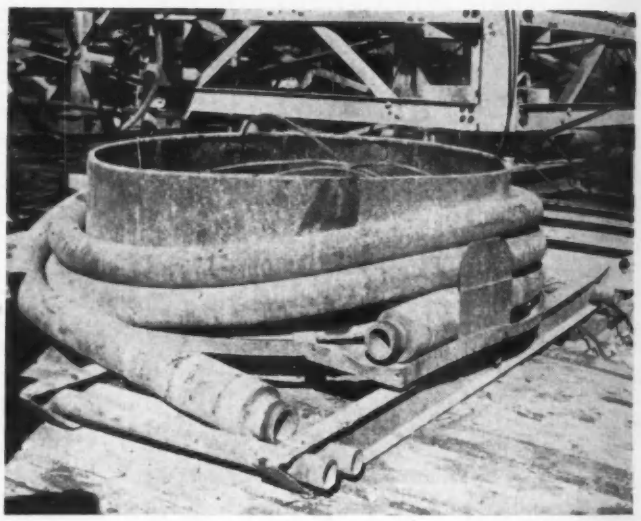
***$10 is paid for each illustrated acceptable contribution. Mail to The Editor, WORLD OIL, P. O. Box 2608, Houston 1, Texas.***



## Built-In Ladder Eases Transportation Problem

To provide easy access to the inspection plate on fuel and water tanks, weld 12-inch sections of sucker rods about a foot apart between the tank and the skid mount. This type of built-in ladder is readily available when needed, doing away with the ladder that must be stored and transported separately from location to location.

## Provide Proper Storage for Rotary Hose



Several methods of transporting and storing rotary hoses are in use, but the most practical means are those that provide a separate and special rack or container to protect the hose and keep the hose carcass from being gouged or scraped.

Sometimes it is expedient to have a spare hose on location and a proper storing place should be provided. This storage should be provided where other heavy equipment will not be laid or dropped on it, and where it will be out of the way of personnel while they are working.

One contractor has made a skid-mounted rack with a circular tool bin in the center that carries the odds and ends of rig fittings. A framework of sucker rods is used to make the circular bin. This framework is covered with a strip of metal plate. The bottom of the bin is made of sheet metal and is allowed to extend out so as to form a resting place for the bottom coil of hose. Guards are provided to hold the hose around the bin. This whole bin arrangement is mounted on a skid made of 2-inch pipe and I-beams.

**How-To-Do-It Ideas Earn Money, too!**

**$10**—WORLD OIL editors want how-to-do-it ideas, so your favorite short cut or invention could put money in your pocket! Write down the substance of that latest idea and send it in with a picture or drawing of the installation . . . if accepted, $10 will be yours. Send those money-making ideas today to Hints Editor, WORLD OIL, P. O. Box 2608, Houston 1, Texas.

## Truck Protects Area around Shot Hole

One seismograph company sets a retired truck over the shot hole to keep the debris near the ground when shooting near property, such as power lines, fences, etc. The truck is used for a spare and when such protection is needed it is spotted over the hole just before the shot is fired.

The truck body is protected by welding an inverted box to the bottom of the truck frame. Debris from the blast is better contained and diverted back to the ground. In this manner only a small area is disturbed and little or no damage results to the truck.

# "Sorry, Sam!"

For really *fast* digging in top shales, or in unconsolidated sands, chalks and red-beds, nothing beats an H. C. Smith *long-tooth* bit. In one oil field after another, drillers tell us the same thing – H. C. Smith *long-tooth* bits spend more time on bottom, making hole, and drill more hole per hour, than any other bits they've tried in these formations. We get good reports, also, on footage made in anhydrite and medium-soft lime, and in "streaked" formations with harder stringers.

H. C. Smith *long-tooth* bits, in several patterns, are available in either 3-cutter or 4-cutter models, with either regular or jet action circulation. Like all H. C. Smith Bits, they feature all-forged bodies, hard-faced cutter teeth and triple-bearing construction for long, trouble-free service.

*- every bit as good as the best*

OUR 20th YEAR
H C Smith
OIL TOOL CO.

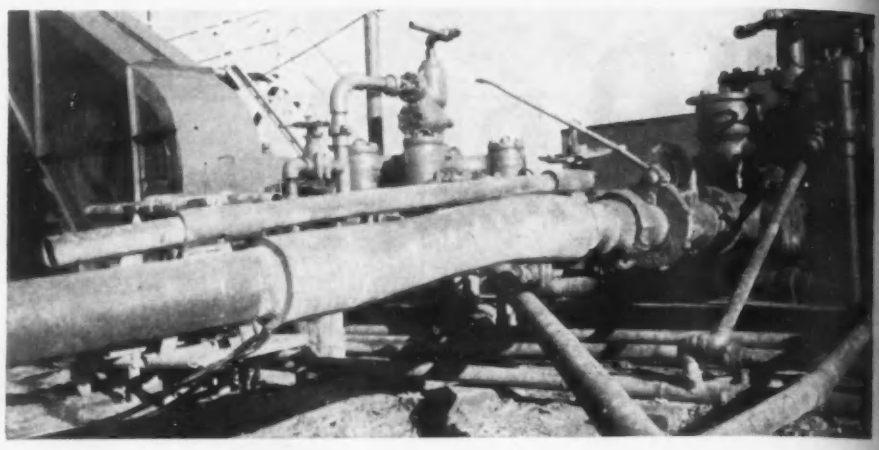
**H. C. SMITH OIL TOOL CO.**

GENERAL OFFICES, EXPORT OFFICES AND PLANT: COMPTON, CALIF.

BRANCHES IN ALL PRINCIPAL OIL CENTERS IN THE UNITED STATES AND CANADA

## Pipe Splint Prevents Suction Hose Damage

Most wear on mud hoses comes from the kinks thrown in them during moves. One way to prevent the hose from being kinked is to place sleeves on the pipe nipples on each side of the hose and run a piece of pipe through the sleeves. This provides a splint which will keep the hose from being bent, folded or otherwise abused.



Three-inch pipe is used for the sleeves and two-inch pipe for the splint. One contractor found that it was not necessary to remove the pipe when the hose was in use at the rig. This provided further protection against hose abuse while it was in service. A long suction line was used between the pump and the suction pit which allowed the line to be raised and lowered several feet without the splint stopping the motion. On short suctions the two-inch splint is removed and the flexibility of the suction line is not impaired.

**A THOMPSON Pays Off and makes Drilling Rigs more Efficient...**

Mud can become an expensive headache on drilling jobs. But smart operators and drillers everywhere are eliminating unnecessary loss of time, needless drilling expense. costly wear and tear on drilling equipment by using the Improved THOMPSON Rotating Shale Separator... equipped with the Sample Machine to provide specimens of formation cuttings.

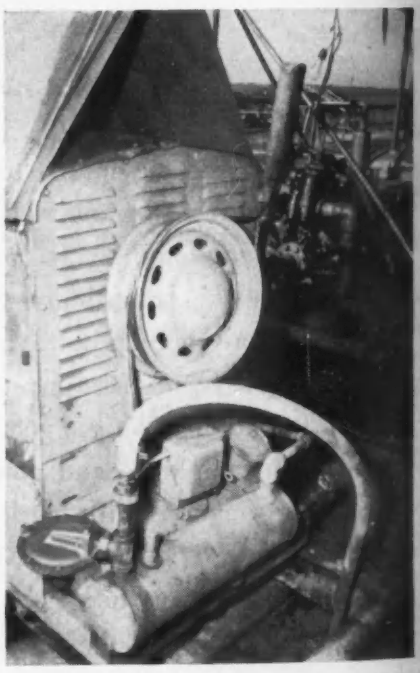
A THOMPSON Separator effectively removes shale and abrasives from mud. Clean mud is fed back into the well. You're ahead... 'way ahead with a THOMPSON!

Manufacturers also of the famous THOMPSON Vibrating Shale Separator and Sample Machine.

**THOMPSON TOOL CO.**

IOWA PARK, TEXAS

SOLD THROUGH SUPPLY STORES EVERYWHERE

## Auto Wheel Provides Storage for Light Wires

Sometimes the distance to the light plant from the rig is more than normally required and extra cable must be provided. However, when it is convenient to set the plant near the mud pumps the extra cable must be cut out. Cutting, splicing, and storing the

## SEEING THE UNSEEN!

Tuboscope dependability is built on Tuboscope research. And from Tuboscope research have come new ways to see the unseen. The Sonoscope is only one example of seeing the unseen, of reducing the unnecessary cost of breakdown of oilfield tubular goods.

Tuboscope can be depended on to keep bringing you the best in new methods of non-destructive testing to see the unseen.

**Tuboscope COMPANY**

2400 HOLMES ROAD • HOUSTON, TEXAS

Species of Lasiognathus — Furnished with rod, line, illuminated lure, and three hooks

spare wire can become time-consuming and expensive.

One company has a "spare" mounted on the back of the light plant and any wire left over after the rig is strung is wrapped around the wheel. The wheel is fastened with three bolts to the back of the engine cover and the hubcap is replaced for appearances. The main switch is mounted just below the storage space so that it is protected and the wiring is simplified. When moving the rig a fair amount of the wiring can be coiled on this wheel.

## Pump Skid Brace Serves As Discharge Manifold

When an auxiliary pump must be moved and hooked up frequently a savings of time and connections may be made by building the connections into the front of the skid base as shown. The swings and quick acting unions remain with the pump and when it is spotted on the location the connections can quickly and readily be made-up.

The connection at the left runs to the mud jets; the one at the right goes

to the rig floor. An additional connection leads to a pop to the suction pits. Another permanently-mounted relief valve is shown to the right of the area where the pump discharge line ties into the header.

When necessary to move, the pump can be stripped by simply breaking out the unions on the suction and discharge line.

**Rig Runner KNOWS ALL**

**What Facts Do You Want?**

**Rig Runner automatically produces a record of procedure for the engineer, a drilling report for the driller, a complete record for the toolpusher. Rig Runner shows accurate drilling time for the geologist and gives management a complete breakdown of costs.**

**There is something for everyone on a Rig Runner chart. This chart is accurate and is made automatically. It points the way to savings all the way from spudding in to TD. Write for more information showing what Rig Runner can do for you.**

***"The Traveling Block Tells the Story"***

WARREN AUTOMATIC TOOL CO. WATCO HOUSTON

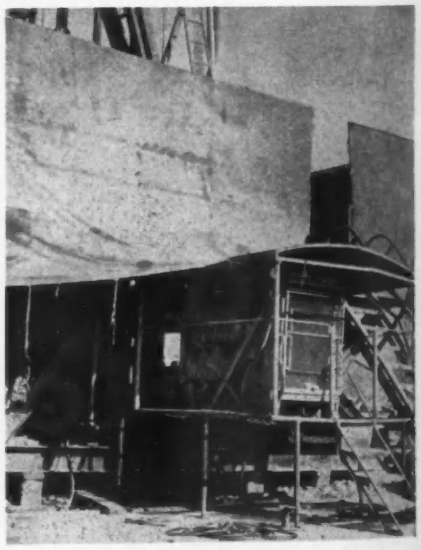
**WARREN AUTOMATIC TOOL CO.**

**1920 Hussion Street, Houston, Texas**

**Manufacturers of Pit-O-Graf and Mud-O-Graf**

Houston CApitol 4-2511 | Odessa 6-5861 | Lake Charles HEmlock 6-2265 | New Iberia 2-7131
Harvey Fillmore 1-3721 | Hobbs, N. M. 3-8218 | Lafayette 5-5313

Export Representative: International Oil Equipment Co.
30 Rockefeller Plaza, New York City

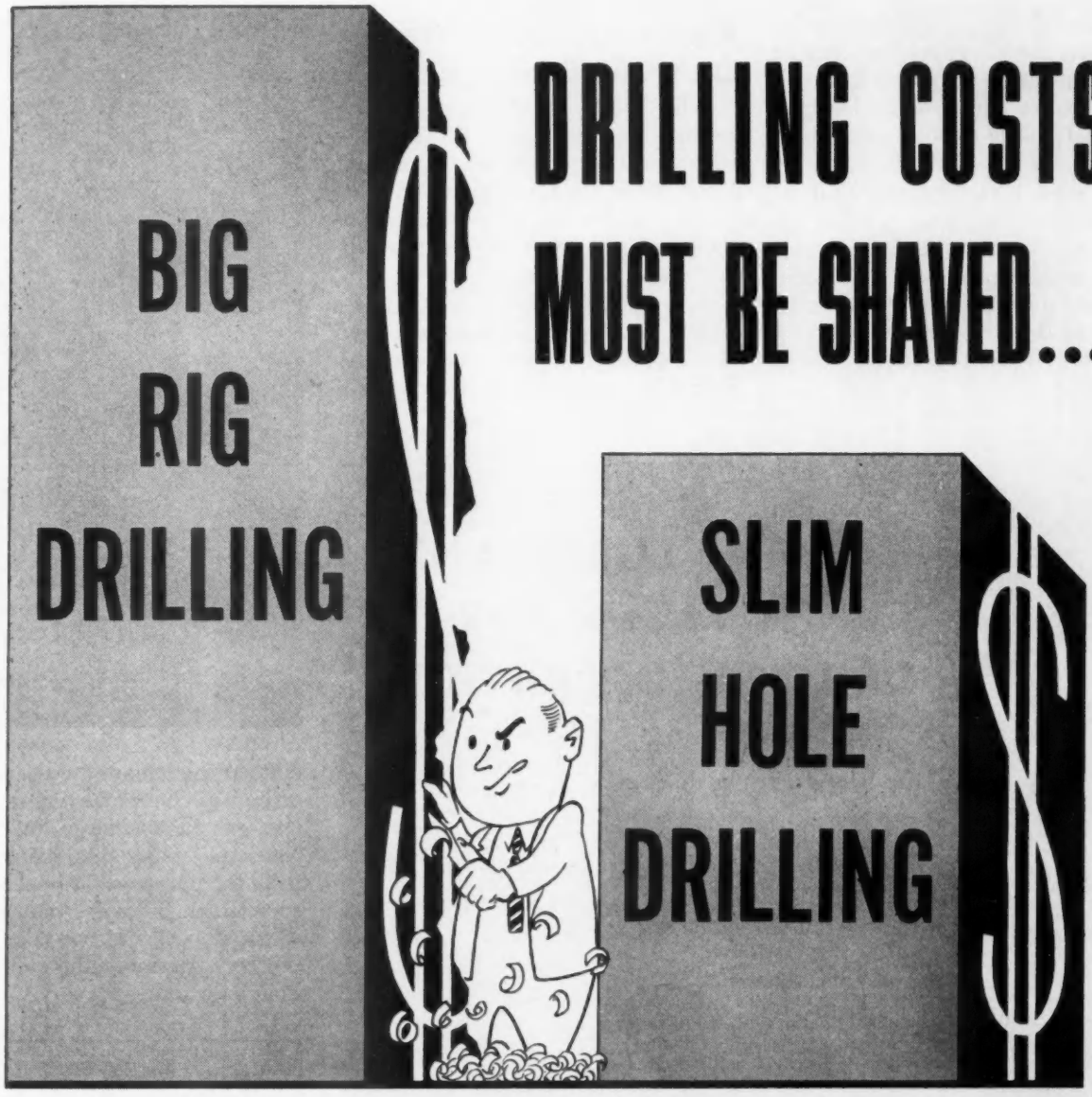



## Mount Table Drive In Rig Substructure

To conserve floor space when using individual rotary table drive, one Gulf Coast operator has mounted his engine in the substructure. The engine is equipped with a torque converter and has a chain drive to the rotary sprocket.

The skid-mounted engine and converter fit into the substructure that has been modified for this purpose. A fabricated engine shed has been added

# DRILLING COSTS MUST BE SHAVED...




## NEARLY 40% OF LAST YEARS 50,000 WELLS WERE DRY!

**Oil company management should investigate the savings made possible by using MODERN Slim Hole Drilling techniques. Behind this statement are sound economic developments that lower the drilling costs of both exploration and production wells. Only by reducing drilling costs can the industry continue to drill the necessary number of wells required to maintain United States production at a high level.**

***Only one well in nine drilled in search of new oil finds production. This is a staggering burden for your drilling budget to bear. In many areas, Slim Hole Drilling promises to reduce both development and exploratory drilling costs.***

**Slim Hole Drilling can be an important economical technique if it is properly used. Technically and economically the equipment and procedures are ready. Now, the next step is for you, the operator and contractor, to find out how Slim Hole techniques fit into your drilling program.**

To help you properly evaluate this technique, Cardwell has prepared a factual book which points out where economies can be made by using less expensive equipment and a smaller hole to reduce costs. Be certain that your operating personnel are well informed. *Write for your 150-page reference book,* "Slim Hole Facts." If you would like to have technical information, write Philip L. McLaughlin, Director of Drilling Research, Cardwell Manufacturing Co., Inc., Wichita, Kansas.

CARDWELL

REG. U. S. TRADE MARK PAT. OFFICE

**CARDWELL MFG. CO.** **WICHITA, KANSAS, U. S. A.**

828 So. Wichita . . . . . Long Distance Telephones 128 - 129 - 130

***Interested in* AIR DRILLING? *Call on Cardwell***

to shelter the engine and the personnel when working on the engine. Steps, catwalks, and guard rails permit easy access for personnel and provide a safe place to work around the engine.

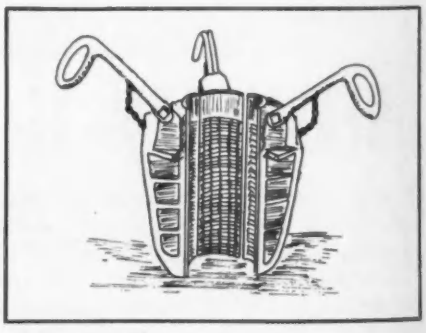
The substructure is modified on both sides of the table so that the engine can be installed on the most convenient side of the rig. It is necessary only to turn the rotary table around so that the sprocket is on the other side. Then the engine can be installed.

## Rig Handy Clothes Washer On Water Discharge Line

When power rigs began replacing steam rigs, the place for washing roughnecks' clothes disappeared. However, it was found that even cold water would wash out a good part of the grime and a washer was rigged up as shown.

A drum was placed over the water supply pit. The wash line was then tied into the bottom of the drum so that a stream would be diverted in a

circular motion around the drum. The drum was connected just ahead of the pop on the discharge line from the water pump so that water pressure from the pump would be directed into the clothes. Since the pump ran most of the time, it did not take any extra power to rinse out the clothes for an hour each tour.



## Weld Safety Chain Guards To Slips and Slip Handles

It is necessary around a drilling rig to take every possible precaution to keep junk out of the hole. One Oklahoma contractor welded safety chains to the pipe slips and then to the slip handles. Occasionally a careless driller will go in the hole too fast and the elevators will hit the slips just as they are being set. This can result in a broken handle. As there is always the chance that the broken handle will fall in the hole, the chain guards prove a good preventative measure.


LE

USE THE LUBRICANTS *Engineered* FOR DRILLING OPERATIONS "LE"

OIL FIELD LUBRICANTS

#1020 — Stop looking! Here's a Crown and Traveling Block lubricant that "stays put" in hot, fast sheave bearings — built to stand up under the high speed and pressure of deep holes.

#505 & #506 — Especially blended, rich bodied gear oils that protect expensive mud pump bearings against failure due to excessive working pressures — heat — and acid corrosion — Two viscosities #505 (SAE 90) — #506 (SAE 140).

#195 — A gall-proof combination of pure lead and highest quality processed zinc — scientifically manufactured to meet demands for tight leak-proof seals and easy "breaks" regardless of temperature or pressure.

#900 — The best insurance against tool joint thread failure that money can buy — a lead base — non-hardening — easy to apply compound — used on many of the toughest holes to assure maximum resistance to galling and freezing.

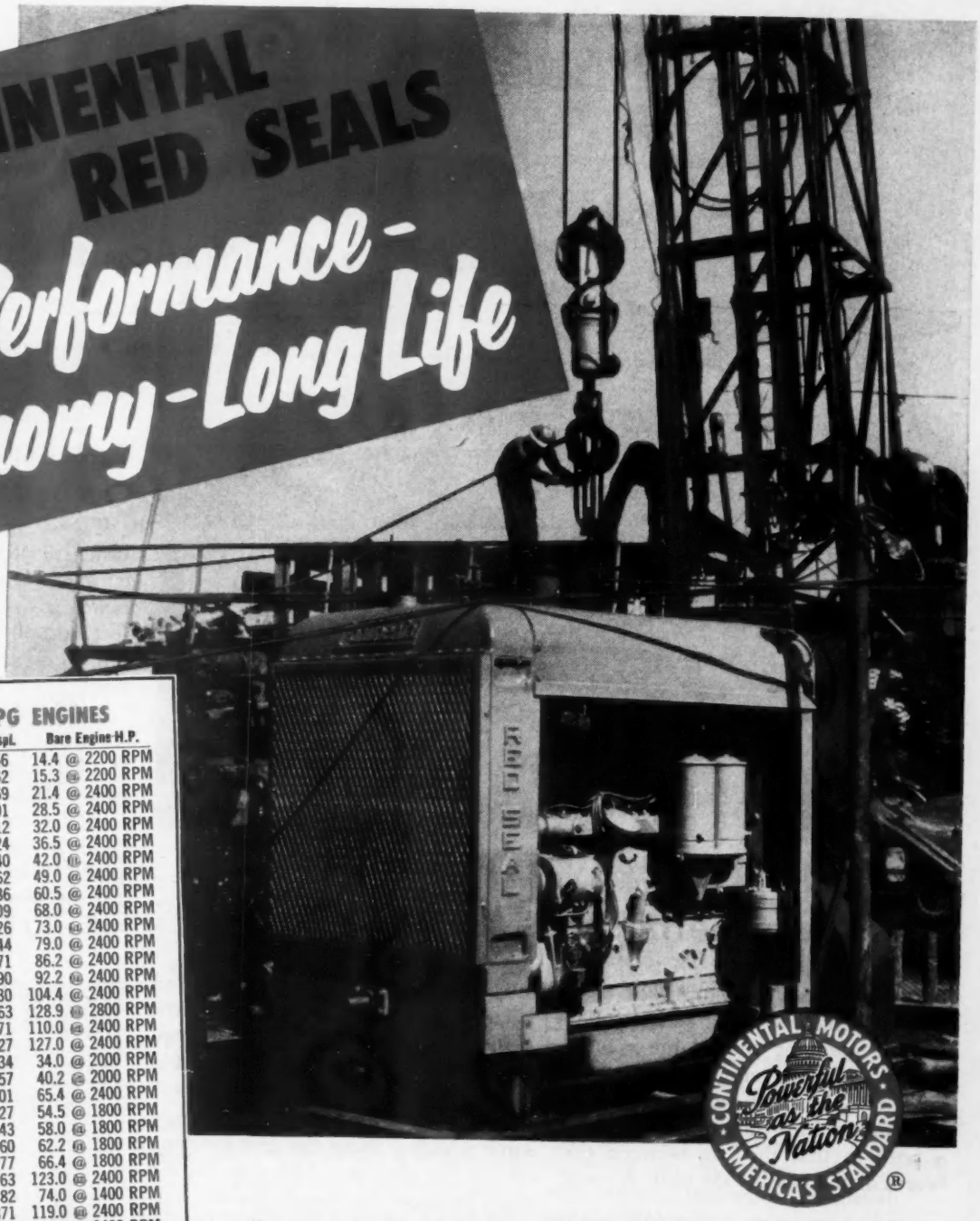
L-X — A chemical supplement for the fuel and oil of all internal combustion engines — Its unique "sweating" action keeps engines clean — reduces acid wear — increases efficiency — keeps "down time" to a minimum.

AVAILABLE THROUGH MOST LOCAL SUPPLY STORES, OR WRITE, WIRE OR CALL FORT WORTH OFFICE DIRECT

LUBRICATION ENGINEERS, INC.
FORT WORTH, TEXAS
INDUSTRIAL LUBRICANTS AND OIL FIELD SPECIALTIES

# CONTINENTAL RED SEALS

## for Performance - Economy - Long Life




### GASOLINE AND LPG ENGINES

| Model | Cyl. | Bore | Stroke | Displ. | Bare Engine H.P. |
|---|---|---|---|---|---|
| N56 | 4 | 2¼ | 3½ | 56 | 14.4 @ 2200 RPM |
| N62 | 4 | 2⅜ | 3½ | 62 | 15.3 @ 2200 RPM |
| Y69 | 4 | 2½ | 3½ | 69 | 21.4 @ 2400 RPM |
| Y91 | 4 | 2⅞ | 3½ | 91 | 28.5 @ 2400 RPM |
| Y112 | 4 | 3 3/16 | 3½ | 112 | 32.0 @ 2400 RPM |
| F124 | 4 | 3 | 4⅜ | 124 | 36.5 @ 2400 RPM |
| F140 | 4 | 3 3/16 | 4⅜ | 140 | 42.0 @ 2400 RPM |
| F162 | 4 | 3 7/16 | 4⅜ | 162 | 49.0 @ 2400 RPM |
| F186 | 6 | 3 | 4⅜ | 186 | 60.5 @ 2400 RPM |
| F209 | 6 | 3 3/16 | 4⅜ | 209 | 68.0 @ 2400 RPM |
| F226 | 6 | 3 5/16 | 4⅜ | 226 | 73.0 @ 2400 RPM |
| F244 | 6 | 3 7/16 | 4⅜ | 244 | 79.0 @ 2400 RPM |
| M271 | 6 | 3⅝ | 4⅜ | 271 | 86.2 @ 2400 RPM |
| M290 | 6 | 3¾ | 4⅜ | 290 | 92.2 @ 2400 RPM |
| M330 | 6 | 4 | 4⅜ | 330 | 104.4 @ 2400 RPM |
| M363 | 6 | 4 | 4 13/16 | 363 | 128.9 @ 2800 RPM |
| B371 | 6 | 4⅛ | 4⅝ | 371 | 110.0 @ 2400 RPM |
| B427 | 6 | 4 5/16 | 4⅞ | 427 | 127.0 @ 2400 RPM |
| G134 | 4 | 3⅛ | 4⅜ | 134 | 34.0 @ 2000 RPM |
| G157 | 4 | 3⅜ | 4⅜ | 157 | 40.2 @ 2000 RPM |
| E201 | 4 | 3⅝ | 4⅞ | 201 | 65.4 @ 2400 RPM |
| H227 | 4 | 3⅝ | 5½ | 227 | 54.5 @ 1800 RPM |
| H243 | 4 | 3¾ | 5½ | 243 | 58.0 @ 1800 RPM |
| H260 | 4 | 3⅞ | 5½ | 260 | 62.2 @ 1800 RPM |
| H277 | 4 | 4 | 5½ | 277 | 66.4 @ 1800 RPM |
| K363 | 6 | 4 | 4 13/16 | 363 | 123.0 @ 2400 RPM |
| J382 | 4 | 4½ | 6 | 382 | 74.0 @ 1400 RPM |
| T371 | 6 | 4⅛ | 4⅝ | 371 | 119.0 @ 2400 RPM |
| T427 | 6 | 4 5/16 | 4⅞ | 427 | 140.0 @ 2400 RPM |
| U501 | 6 | 4½ | 5¼ | 501 | 159.0 @ 2400 RPM |
| R513 | 6 | 4½ | 5⅜ | 513 | 164.3 @ 2400 RPM |
| R572 | 6 | 4¾ | 5⅜ | 572 | 182.4 @ 2400 RPM |
| R602 | 6 | 4⅞ | 5⅜ | 602 | 191.7 @ 2400 RPM |
| V603 | 8 | 4¾ | 4¼ | 603 | 220.0 @ 2800 RPM |
| S749 | 6 | 5⅜ | 5½ | 749 | 217.0 @ 2200 RPM |
| S820 | 6 | 5⅝ | 5½ | 820 | 237.0 @ 2200 RPM |

### CUSHIONED POWER DIESEL ENGINES

| Model | Cyl. | Bore | Stroke | Displ. | Bare Engine H.P. |
|---|---|---|---|---|---|
| ZD129 | 4 | 3¼ | 3⅞ | 129 | 34.0 @ 2000 RPM |
| GD157 | 4 | 3⅜ | 4⅜ | 157 | 39.0 @ 2000 RPM |
| *ED201 | 4 | 3⅝ | 4⅞ | 201 | 45.8 @ 2000 RPM |
| HD243 | 4 | 3¾ | 5½ | 243 | 55.0 @ 2000 RPM |
| *HD260 | 4 | 3⅞ | 5½ | 260 | 59.0 @ 2000 RPM |
| *HD277 | 4 | 4 | 5½ | 277 | 63.0 @ 2000 RPM |
| *JD382 | 4 | 4½ | 6 | 382 | 72.5 @ 1600 RPM |
| TD427 | 6 | 4 5/16 | 4⅞ | 427 | 106.0 @ 2000 RPM |
| RD572 | 6 | 4¾ | 5⅜ | 572 | 154.0 @ 2000 RPM |
| VD603 | 8 | 4¾ | 4¼ | 603 | 175.0 @ 2600 RPM |
| SD802 | 6 | 5 1/16 | 5½ | 802 | 202.0 @ 1800 RPM |

*Available for industrial applications only.

**One reason for the oil field's widening acceptance of Red Seal power is the diversification of the Red Seal line. Long-range satisfaction with any piece of equipment depends largely on the closeness with which the engine is matched to its work. And with 47 different basic models from which to choose—each capable of still closer tailoring to the job's specific needs, through specification changes—your requirements can be met exactly, no matter what the application.**

**SERVICE AND GENUINE RED SEAL PARTS SOLD EVERYWHERE**

## Continental Motors Corporation

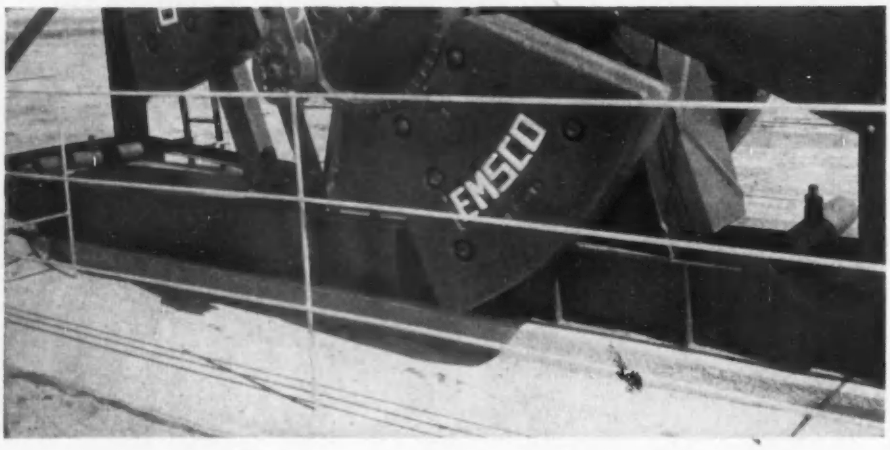
MUSKEGON • MICHIGAN

6 EAST 45TH STREET, NEW YORK 17, NEW YORK • 6218 CEDAR SPRINGS ROAD, DALLAS 9, TEXAS • 3817 SOUTH SANTA FE AVENUE, LOS ANGELES 58, CALIFORNIA • 910 SOUTH BOSTON STREET, ROOM 1008, TULSA, OKLAHOMA • 1252 OAKLEIGH DRIVE, EAST POINT (ATLANTA) GEORGIA

# PRODUCTION HINTS

**These How-To-Do-It Ideas Can Save You Money**

**$10 is paid for each illustrated acceptable contribution. Mail to The Editor, WORLD OIL, P. O. Box 2608, Houston 1, Texas.**




## Tie-Down Method Fits Many Units

In part of the Julesburg Basin fields it is customary to lay a concrete slab for the pumping units large enough to accommodate almost any size or make unit. To tie the units down, bolts are grouted into the concrete in such a position that they lie between the beams at the base of the unit. A piece of pipe is drilled to fit the bolt and placed on the bolt as shown in the photograph. After it has been properly centered, washers, a nut and a lock nut secure the unit in place.

When it was first tried there was some question about the unit creeping on the flat concrete. This was not the case, because the rough bottom surface of the metal base bites into the concrete and holds still.

Before positioning the bolts a decision is made on the possible types and sizes of pumping units which might be used on the well: A small unit when the well is flowing and needs only agitation, a large one when the salt water load becomes heavy. This is based on local conditions. The Composite Catalogue supplys the dimensions of the units and the bolts are placed to fit all possibilities.

To remove a unit it is only necessary to loosen the nuts, remove the pipe and move the unit off, making room for the next one.

The method is simple, inexpensive, satisfactory and saves time.

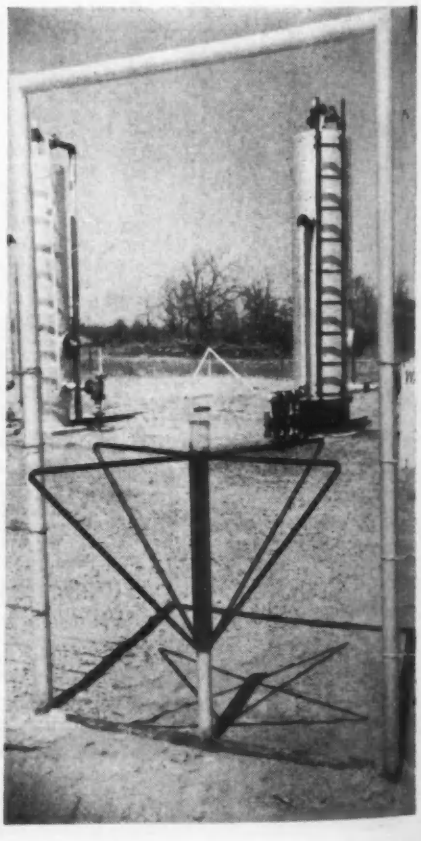
**How-To-Do-It Ideas Earn Money, too!**

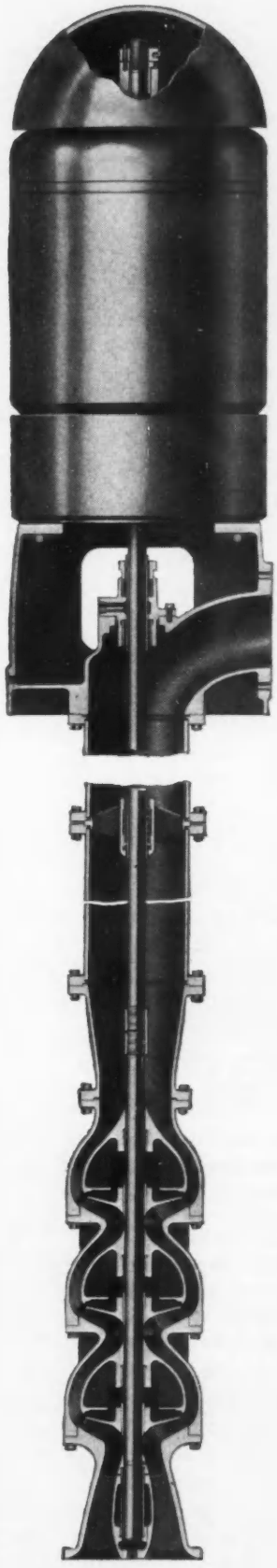
**$10**—World Oil editors want how-to-do-it ideas, so your favorite short cut or invention could put money in your pocket! Write down the substance of that latest idea and send it in with a picture or drawing of the installation . . . if accepted, $10 will be yours. Send those money-making ideas today to Hints Editor, World Oil, P. O. Box 2608, Houston 1, Texas.

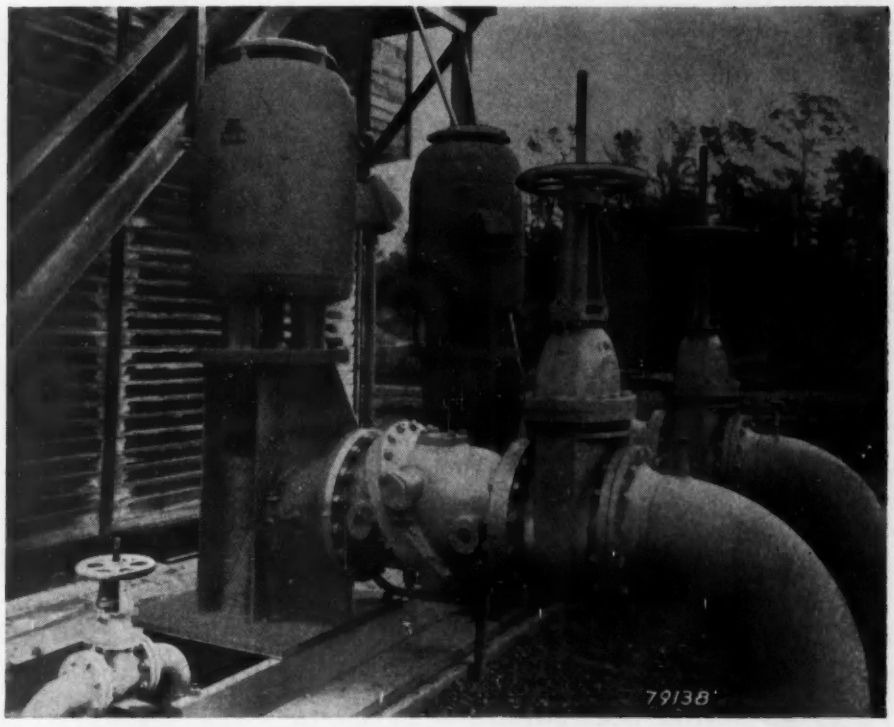
## Tank Battery Entrance Can Be Made from Scrap

The neat, durable tank battery entrance illustrated here is a simple matter to construct. The 2-inch pipe frame is welded with the sides extending two feet beyond the sill. These extensions are set in concrete to make the unit stable, making side braces unnecessary.

A three-foot length of 1½-inch pipe is welded upright in the center of the sill to hold the turnstile which is made from a two-foot piece of pipe with a plate welded on one end. Four ½-inch rod arms are welded to the pipe. When this unit is complete it can be slipped over the 1½-inch post and will rotate freely.








# How IR vertical turbine pumps cut installation and operating costs in COOLING TOWER SERVICE

Wherever you need to handle large volumes of water at medium to high operating heads, Ingersoll-Rand vertical turbine pumps offer these cost-saving advantages:

**Simplified Installation.** Vertical mounting with submerged suction saves valuable floor space and eliminates all suction piping. Pumps are self-priming and require no auxiliary priming equipment. They can be controlled by simple float switches. Driver is mounted above floor level, safe from flooding.

**Minimum Power Requirements.** Submerged suction permits higher operating speeds and smaller, lower-cost driving motors. Simple impeller adjustment enables operating efficiency to be easily maintained at highest level throughout the life of the pump.

**Easier Maintenance.** There is only one stuffing box — easily accessible from floor level. Cutless rubber shaft bearings are self-lubricating and assure vibration-free operation. Oil-lubricated column bearings are also available. Adjusting nut on top of hollow motor shaft permits simple adjustment of impeller clearances from floor level.

Ingersoll-Rand vertical turbine pumps are available in single or multi-stage units with capacities of 60 to 14,000 gpm at heads of 10 to 100 ft per stage. For complete information, send for your copy of new Bulletin 7228.

**Ingersoll-Rand**

10-313 **11 Broadway, New York 4, N. Y.**

ROCK DRILLS • CONDENSERS • PUMPS • COMPRESSORS • DIESEL ENGINES • AIR AND ELECTRIC TOOL

CAPITOL
300# FORGED STEEL
UNIONS

LISTED UNDER REEXAMINATION SERVICE UNDERWRITERS' LABORATORIES, INC. UL

This U.L. Label Guarantees Quality

- Brass or integral steel seat
- Sizes 1" thru 2" ALL forged steel
- Smaller sizes machined from solid bar
- Close tolerance
- Meets all Federal specifications

Available from stock in sizes ½" through 2", 300# steam or 2000# cold water, oil or gas, non-shock.

PLUS Capitol's package

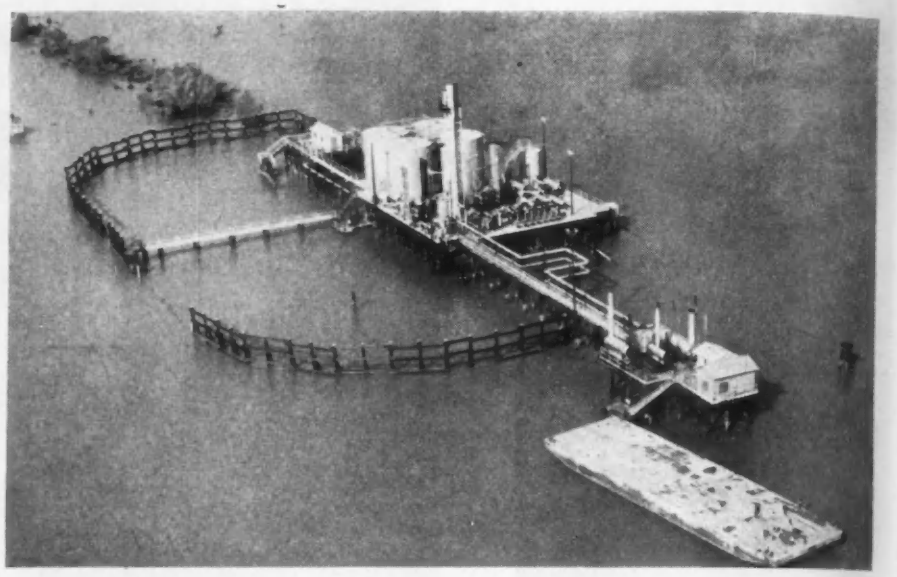
extra protection and easier handling at no extra cost means

EXTRA PROFIT

order all your fitting requirements from

CAPITOL
MFG. & SUPPLY CO.
COLUMBUS, OHIO

COUPLINGS — NIPPLES — UNIONS — RADIANT HEAT FITTINGS — FURNACE COILS — WELL SUPPLIES — STEEL PIPE FITTINGS



## Fence Protects Platform at Duck Lake

At Duck Lake, La., a small boat caught fire and drifted with the current toward a platform built in the water. The fire became so severe that the owner of the boat was forced to abandon it. The burning craft ended up beneath the platform, and the entire structure went up in flames.

To eliminate the possibility of such an occurance to their equipment, one company built a fence around the upstream side of their platform. The fence is made of pilings driven into the river bed with cross beams bolted to the pilings. Although the fence is not fireproof, it keeps burning craft away from the platform until the fire can be extinguished. Should the cross-beams and pilings catch fire they will burn only to the waterline and will still provide an adequate barrier.

It is not uncommon in the area for barges to break loose during bad weather and do considerable damage to platforms. Here again the fence comes into play. By bracing each piling in the fence with a second piling driven into the river bed at an angle, it is possible to make an extremely rigid barrier. The structure may even be used as a temporary dock when necessary.

This particular platform also features a concrete topped deck as an additional protection against fire. Not only is the concrete non-combustible but it is easily cleaned which reduces the possibility of accidents caused by slippery walks.

## Salt Water Disposal Pump Is Part of Pumping Unit

This idea eliminates an extra power unit on a salt water disposal well that requires occasional pumping.

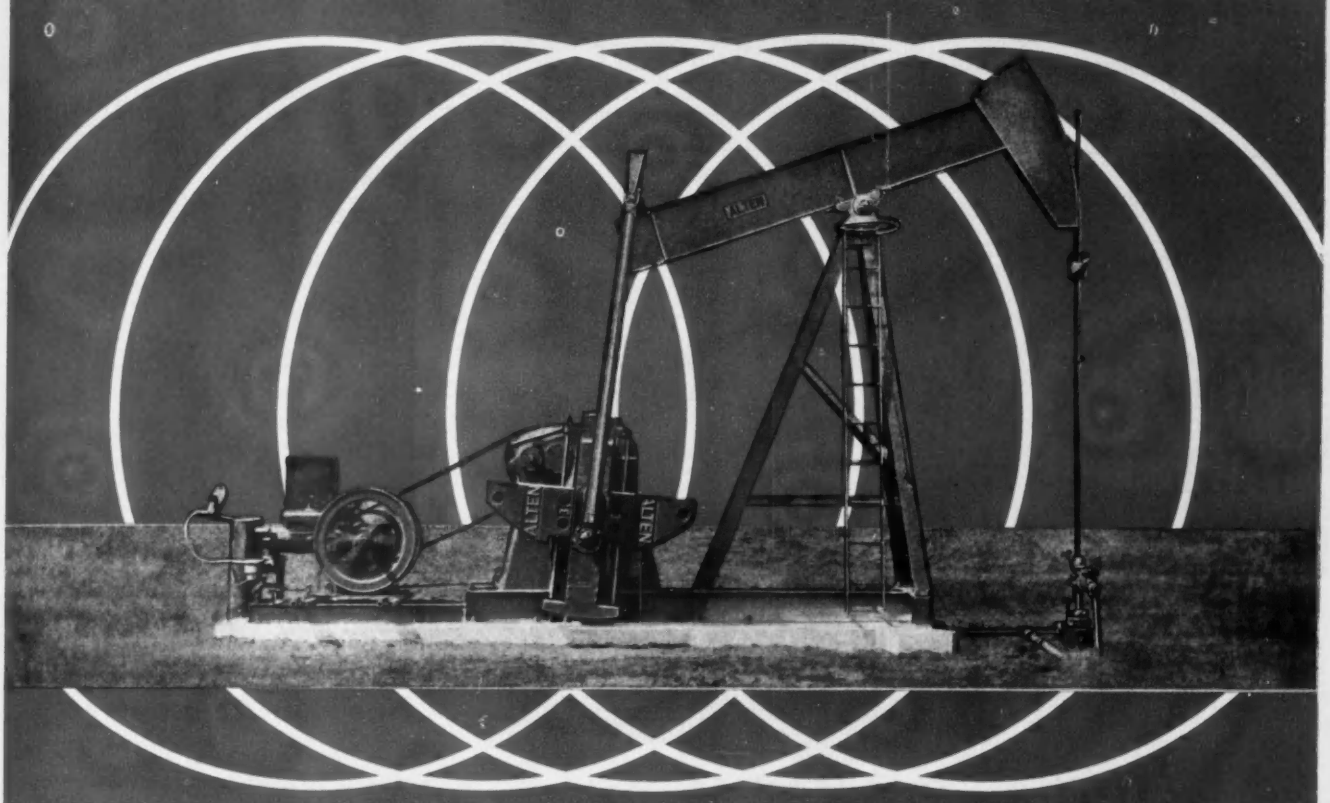
By installing a pump inside the frame of a pumping unit close to the disposal well, as illustrated, it is possible to use the power in the walking beam to do two jobs.

While the disposal well is on a vacuum, the pump is disconnected from the eye on the walking beam as appears in the illustration. The fluid passes around the pump through check valves and into the disposal well. When the storage pit begins to fill and the pump is needed, it may be quickly connected to the walking beam and put in operation.

A gage on the discharge line shows the pumper at what pressure the pump is operating. As a safety measure a pop valve is installed to limit the pressure which the pump can deliver.

# Pumping their way to Leadership

## ALTEN Pumping Units



*A FULL LINE OF 47 MODELS AND TYPES FROM 6000 IN. LBS. PEAK TORQUE TO 320,000 IN. LBS. A. P. I.—ALL*

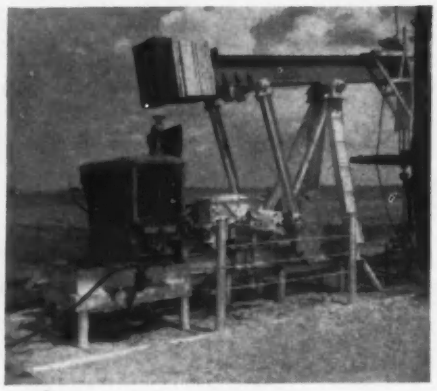
**TOP QUALITY WITH THESE ADVANCED FEATURES**

**Screw type adjustable counterbalance with locking device and calibrations (one man may adjust with safety while standing on the ground). ... Forged steel gears---Helical or herringbone gear reducers.... Saddle provides four-way walking beam adjustment.... Bronze bushed long life saddle bearing.... Self aligning roller wrist pin bearings.... Tapered wrist pin cannot rotate in crank. ... Internal expanding automotive type brake of ample capacity.... Over-the-beam equalizer.... Rugged, samson post and frame.... Adjustable horsehead may be swung back over the beam for well servicing.**

—ALTEN—
Foundry & Machine Works, Inc.
LANCASTER, OHIO

**WORLDWIDE DISTRIBUTION THROUGH SUPPLY STORES**

## Use Portable Pumping Unit To Test Wildcat Wells



To cut down rig time used to swab and test wells in questionable areas, one company resorted to a portable pumping unit. Once the tubing and packer are set, the hole is cleaned and a workover rig can run the rods. Here the pump takes over and tests the well as long as is necessary.

The pumping unit is built on a frame which raises it sufficiently to allow the counter balance weights to rotate freely above the skid base. The skids are made of 4-inch drill pipe and the entire frame is of sturdy construction. A load of sand, smoothed out beside the well, provides a temporary foundation during testing.

Should the well prove of value a permanent base can be built for a regular pumping unit. If the tests are not satisfactory, the entire portable unit quickly and easily can be loaded on a truck and moved to another location.


DON'T TAKE CHANCES...

...GET A JENSEN!

**You wouldn't depend on inexperienced men to handle your equipment . . . and neither should you depend on unproven equipment to lift oil. You take no chances with a JENSEN JACK—it has proved to lift MORE oil MORE profitably under even the most adverse conditions. Production records of JENSEN JACKS are available . . . and you can have them by seeing your JENSEN Dealer or by writing us a card or letter. Take no chances . . . get the facts . . . you'll get a JENSEN JACK!**

JENSEN JACKS

**JENSEN BROS. MFG. CO., INC.**
**Coffeyville, Kansas, U.S.A.**

***Export Office:***
**25 Broad Street, New York City**

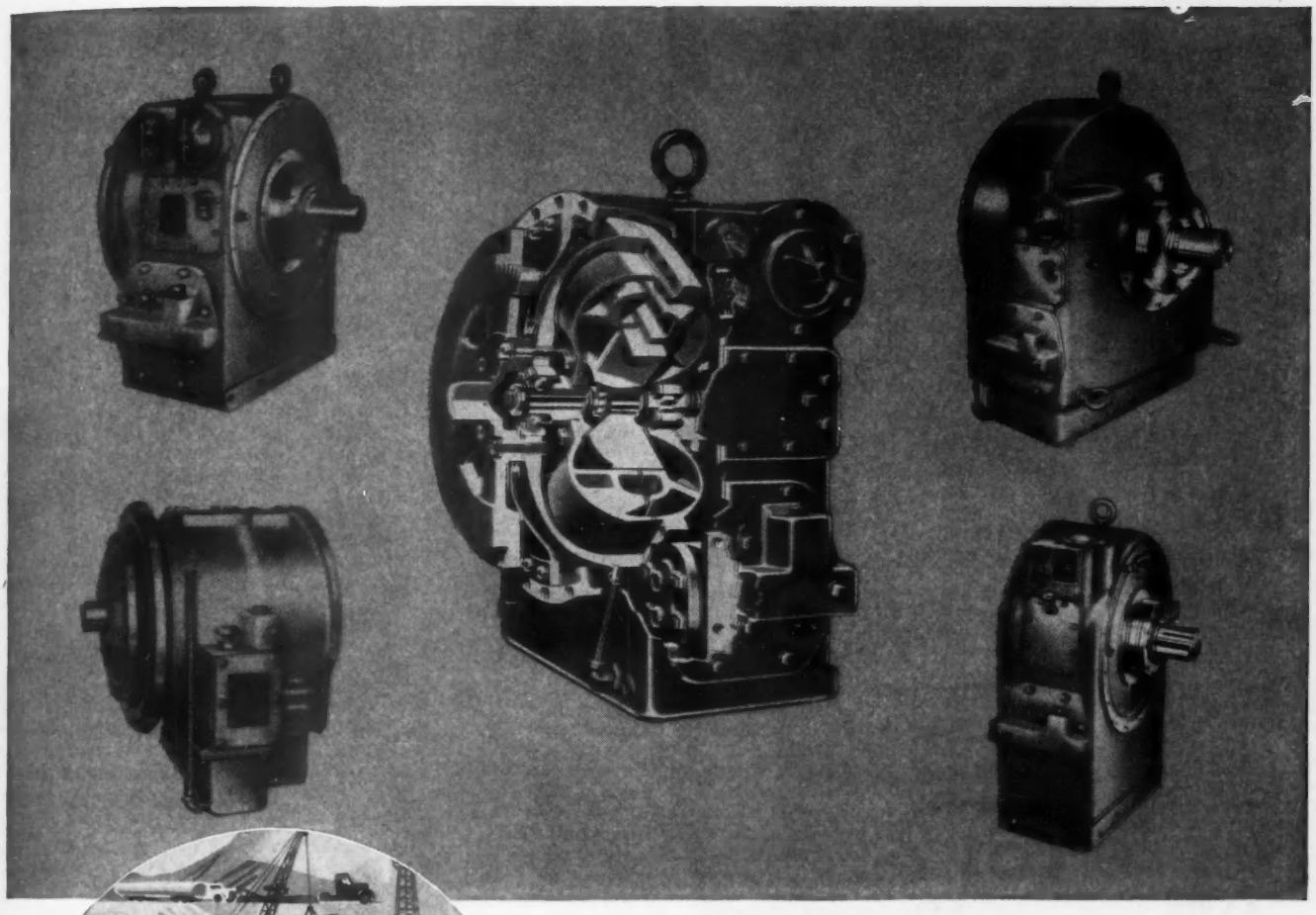
## By-Pass System Provides Fine Flow Adjustment

Here is a by-pass around the main valve installed by a pumper to help him adjust to his daily allowable.

The well is one in the Houghton Gas field where the allowable is based on open flow and freezing conditions are not bad. When it is time to run an open flow, the large valve is opened and the well tested in an ordinary manner. When a fine adjustment is needed, the large valve is closed and the flow is choked with the by-pass valve.

The by-pass was installed by removing the valve and adjacent nipples. Holes were cut in each nipple to fit a short piece of the by-pass pipe which was welded in place. The free end of the pipe was fitted with half a hammer union and the valve and nipples were reassembled on the christmas tree.

The remainder of the by pass-line, containing a suitable valve, was bent to fit and threaded on the ends for the unions. With this done, the unit was assembled and the by-pass system complete.



# For your power need, *whatever it is,* there's a "right" TORCON Model

With a horsepower range from 15 to 600, and fly-wheel diameters from 11 to 26 inches, Torcon has a model that's right for your need — a standard unit available immediately for original equipment or for field installation.

Your real benefits begin after Torcon is installed—

- **more work and less wear: Torcon blade design balances engine efficiency and horsepower through the working range—smooth, shockless power that reduces wear, prolongs life**
- **integral unit includes oil pump, sump, pressure regulator; much better efficiency with minimum maintenance**

Are you constantly on the look-out for ways to get more efficient power at less cost? Talk to Clark—on all problems of power transmission, from flywheel to point of torque application. You'll find, as do many leading equipment manufacturers, that it's "good business to do business with Clark".

**CLARK EQUIPMENT COMPANY, Transmission Division**

**Falahee Road • Jackson 16, Michigan**

**Other Products of the Clark Automotive Division . . .** TRANSMISSIONS • AXLE HOUSINGS • TRACTOR UNITS • TORCON TORQUE CONVERTERS • ELECTRIC STEEL CASTINGS • GEARS and FORGINGS • FRONT and REAR AXLES for TRUCKS, BUSES and OFF-HIGHWAY EQUIPMENT.

***SEND FOR THIS TORCON BULLETIN***

—a concise, helpful statement on how Torcon installations cut operating costs, prolong equipment life.

**CLARK® EQUIPMENT**

CUT STUCK SAND LINES INSIDE TUBING

KINLEY SAND LINE CUTTER

*M. M. Kinley Company, Licensees*

ABILENE, TEXAS
Hudson-Eads, Inc. ----------2-5331
CORPUS CHRISTI
Tubokut Wireline Services----------5-1811
HOBBS
Horne Well Service Co.----------3-5396
MIDLAND
Luccous Service & Equipment Co.------2-1631
PETTUS, TEXAS
Eddie Jones Engineering Co.-16 or Beeville 1547
OKLAHOMA CITY
Rainbo Service Co.----ME 4-2131, ME 2-3045
WICHITA FALLS
Hudson-Eads, Inc. ---2-3767, 2-8584, 3-4690
CASPER, WYOMING
C. A. White ----------3-5264
GLENDIVE, MONTANA
C. A. White----------EMpire 5-3833
FORT MORGAN, COLO.
C. A. White----------919

TRADE MARK REG. U. S. PAT. OFF.
TIME TESTED
MACCO
GAS LIFT

*Telephones:*

ALICE
4-4993 4-5787
MIDLAND
3-3936 2-5323
VICTORIA
Hillcrest 5-1731 WJ-53395
BEAUMONT
5-1958 ZF-78424
HOUMA, LA.
2-2147 7728 2-1285
NEW IBERIA, LA.
4-2674
HOBBS, N. M.
3-5059
*LONG BEACH, CALIF
NE 6-4666
*LOS ANGELES, CALIF.
JE-5261
*VENTURA, CALIF.
MI 3-4033
*TAFT, CALIF.
5-3244
* Calif. Rep. Emsco Mfg. Co.

MACCO
OIL TOOL CO.
1521 PRINCE ST., HOUSTON 8, TEX.

UN 1-1253
HO 5-7585 MI 9-0747 UN 4-0777
MO 5-6809 UN 9-1397 UN 4-4939

# What's Happening

## AMONG MEN IN THE INDUSTRY

**Gus Athanas** has been named district engineer in the Lubbock district office of **Stanolind Oil and Gas Company.** A member of the Lubbock staff since 1952, Athanas was senior petroleum engineer prior to his promotion. Since joining Stanolind in 1946, he has been on engineering assignments in Jennings and Anse La Butte, La., and in Fort Worth and Levelland, Texas.

•

**C. Loyd Wagner,** toolpusher for **Warren-Bradshaw Exploration Company,** has been named superintendent of the North Oklahoma-Kansas district. His headquarters will be in Oklahoma City. **L. O. Ward,** formerly superintendent for the district, has been transferred to Norman, Okla., as superintendent of the Southern Oklahoma-North Texas district.

•

**Millard Moor's** appointment as administrative assistant to the division manager of **Sun Oil Company's** Gulf Coast division with headquarters in Beaumont, Texas, has been announced. Simultaneously, **R. E. Lee** advances to manager of the Crude Oil Supply & Transportation department at Beaumont, the position formerly held by Moor. Lee previously was crude oil scout. **Malcolm James,** formerly assistant to the Division Land department manager, moves to Division Land department manager with offices at Beaumont, succeeding **K. V. Schroeder,** who continues as assistant division manager, Gulf Coast division. Other appointments announced include: **J. R. duPerier,** who succeeds Lee as crude oil scout, and **Robert Wilson, Jr.,** formerly regional landman, who becomes assistant division manager of Sun's Land department at Beaumont.

•

**L. W. Calahan's** promotion from division geologist to assistant division manager, Louisiana division, Producing department of **The Texas Company,** recently was announced. **W. W. Moore, Jr.,** senior geologist, Louisiana division, will succeed Calahan as division geologist. Calahan joined Texaco in 1937 as junior geologist at Shreveport. Later, in the division office in New Orleans, he served as geologist and senior geologist, until he was promoted to division geologist in 1951. Moore's service with the company started in 1937 when he was employed as junior geologist in the South Texas division at Houston. After a series of transfers and promotions, including a 2½-year assignment as paleontologist at Bogota, Colombia, South America, he was made senior geologist in the Louisiana division office in 1953.

•

**Charles A. Prince,** Los Angeles attorney, has been elected to the board of directors of **Crestmont Oil Company.** Prince, who for many years has been actively engaged in the oil business, is former assistant national program director of NBC Television in New York, and a former secretary and treasurer of the Hollywood Bar Association.

### *New Engineering Company Formed*

**New engineering organization, Williams Brothers Corporation, has been formed to handle the engineering work of Williams Brothers pipe line organization. Officers are, left to right, John Williams, president; Wilson N. Gilliat, chief engineer; Vincent E. Butler, vice president, and C. M. Collins, executive vice president.**

E. W. Masters

Stanley H. Oatway

E. W. Masters, executive assistant to the Pacific Coast area vice president for **Shell Oil Company,** retired recently after 30 years with Shell, 40 years in the oil industry. Masters began his oil career in 1918, working for Standard Oil of New Jersey and other companies in the West before joining Shell in 1926 as production engineer. He was made chief exploitation engineer in 1932 and, subsequently, production superintendent, division superintendent, division manager, Pacific Coast area production manager and his most recent assignment, executive assistant. Retirement of **Stanley H. Oatway,** assistant to the Pacific Coast area exploration and production vice president, also has been announced. He had been with the company 30 years. Oatway joined Shell in 1925 on a exploration torsion balance crew in the San Joaquin Valley. Before moving to Los Angeles and his recent position seven years ago, he served ten years as assistant to the executive vice president in the San Francisco office. Oatway will be succeeded by **John E. Young,** former senior analyst in charge of salary administration for the Personnel and Industrial Relations department. Young joined Shell in 1937 as a roustabout, transferring later to the Treasury department.

John E. Young

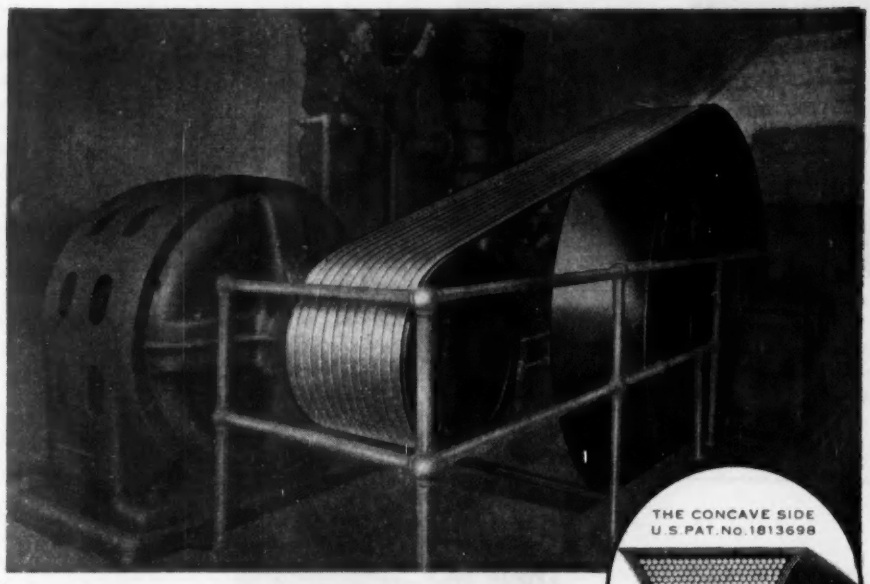
•

**Robert B. Morton** recently became district geologist at Corpus Christi, Texas, for **Sunray-Midcontinent Oil Company,** replacing **Wilford Lee Stapp** who resigned to become a consultant in New Orleans. Morton's former post of geophysical coordinator in Sunray's Corpus Christi office has been filled by **Ralph L. Lauderback,** area geologist. **Watson Caldwell** remains as division geologist over Sunray's Corpus Christi geological staff.

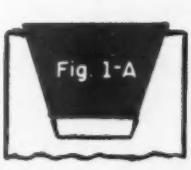
**Free to WORLD OIL Subscribers**

Have you considered writing articles for WORLD OIL or the other technical press? If so, send for our valuable booklet, the Author's Handbook. It aids non-professional writers to prepare articles for publication, also offers suggestions on making presentation reports, or papers for meetings.

Send your request for your free copy today to Librarian, Gulf Publishing Company, P. O. Box 2608, Houston 1, Texas.

# Why a V-Belt with CONCAVE SIDES wears longer




It is easy to demonstrate to yourself why the concave sides (Fig. 1) of the Gates belt greatly lengthen belt life.

Simply bend a Gates belt and feel the sides. Notice how these precisely engineered concave sides *fill out* on the bend and *become straight.* Thus a Gates belt grips the sheave groove evenly (Fig. 1-A) and wear is distributed uniformly across each side of the belt. That means longer belt life; lower costs.

Make the same test with a straight-sided belt (Fig. 2) and see what happens. The sides bulge out on the bend (Fig. 2-A) concentrating the wear at points shown by arrows.

To assure longer wear and keep belt costs down, specify the V-belt with concave sides—Gates Vulco Rope . . . readily available from nearby distributor stocks. The Gates Rubber Company, Denver, Colorado —*World's Largest Maker of V-Belts.*

*There are Gates Engineering Offices and Distributor Stocks in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.*

TPA 60

# Gates VULCO ROPE Drives

G. J. McLernon

Lyall Romick, Jr.

**APA, Incorporated,** has announced the appointment of **George J. McLernon, Jr.,** as manager of operations in the Tulsa office. Starting in 1933 as an oil field worker, he was employed by various independents before becoming petroleum engineer with Magnolia in 1939. He also was petroleum engineer for Transwestern Oil which later merged with Sunray, and petroleum engineer and production superintendent with J. E. Crosbie, Inc. Before accepting his present position with APA, McLernon was chief engineer for Mid States Oil Corporation. Also announced was the appointment of **Lyall Romick, Jr.,** as office manager of APA's Tulsa offices. He formerly was accountant with Daniel, Daniel, Ennis & Company. Before this he worked in oil and gas accounting for Humack Oil Company.

# A NOSE FOR OIL HELPS—but

The best way to find oil . . . new oil . . . is by drilling wells—something we have been doing for quite some time.

In the year ahead SOMICO will continue its program to further the development of South Texas oil and gas resources, realizing that every new discovery, and every new producer adds to the Nation's reserves.

If you're in the market for South Texas Coastal Crudes these companies are in a position to provide it.

**SOUTHERN MINERALS CORPORATION**
**SOUTHERN PIPE LINE CORPORATION**

**CORPUS CHRISTI, TEXAS**


**Conger Reynolds,** director of public relations for **Standard Oil Company (Indiana)** for 26 years, retired February 1 to become chief of the Office of Private Cooperation of the U. S. Information Agency in Washington. Reynolds will be succeeded as head of Standard's public relations department by **Don Campbell,** now assistant director. Three other executive changes in the department also were announced. **James M. Patterson,** an assistant director, will become director of field services; **John Canning,** an assistant director, will be director of information services; and **Robert Siebert,** copy chief, will be editorial director. Reynolds, sometimes called the dean of oil industry public relations men, began his career as a newspaperman in Des Moines and founder of the journalism department of the University of Iowa. He has been director of public relations for Standard Oil since October, 1929. Campbell joined Standard Oil in 1949 after public relations work in New York. Earlier he had been a news editor of Detroit and Miami (Florida) newspapers.

•

**Woollen H. Walshe** has been named a vice president of **California Commercial Company,** wholly-owned subsidiary of Standard Oil Company of California. He assumed direction of the firm's Washington, D. C., offices February 1. He succeeds **E. M. (Ned) Burnham** who retired after heading California Commercial's Washington office since 1944. Walshe joined the Standard of California organization at New Orleans in 1946 as an attorney for The California Company, also a Standard subsidiary. He was named general attorney of that company in 1951.

Woollen H. Walshe

•

**Clark R. Miller, M. D.** and **John R. Rock** have been promoted to newly-created positions on **Tide Water Associated Oil Company's** executive staff. Miller, former western division medical supervisor, was appointed medical director of the company. In his new post he will plan, develop and coordinate Tide Water's medical and health programs. Miller joined Tide Water in 1950. Rock will serve as assistant to the employe relations manager, with supervision over the company's employe training activities. Until recently, he was assistant western division employe relations supervisor. Rock joined Tide Water in 1945 as training supervisor at its Avon Flying A Refinery.

•

**C. E. Riddell,** former exploration manager-Northwestern division for the British American Oil Producing Co., since March, 1953, has resigned to enter general petroleum consulting work in the Rocky Mountain area. His office will be 1517 Denver Club Building, Denver.

•

**Niles R. Faulk** has been appointed head of the Geological department of **The Louisiana Land and Exploration Company.** His offices will be in the American Bank building, New Orleans.

**BONUS FOR DRILLING CONTRACTORS**

That's what your Goodall rotary hose is — a bonus for drilling contractors. Twenty years ago the Barney Coupling was developed by Goodall and today it is still the only coupling which can be re-set to make damaged hose as good as new. This means a bonus for you in that a Goodall hose when damaged can have the couplings re-set by the Goodall repair service for future use as rotary hose or in shorter lengths as vibrator hose.

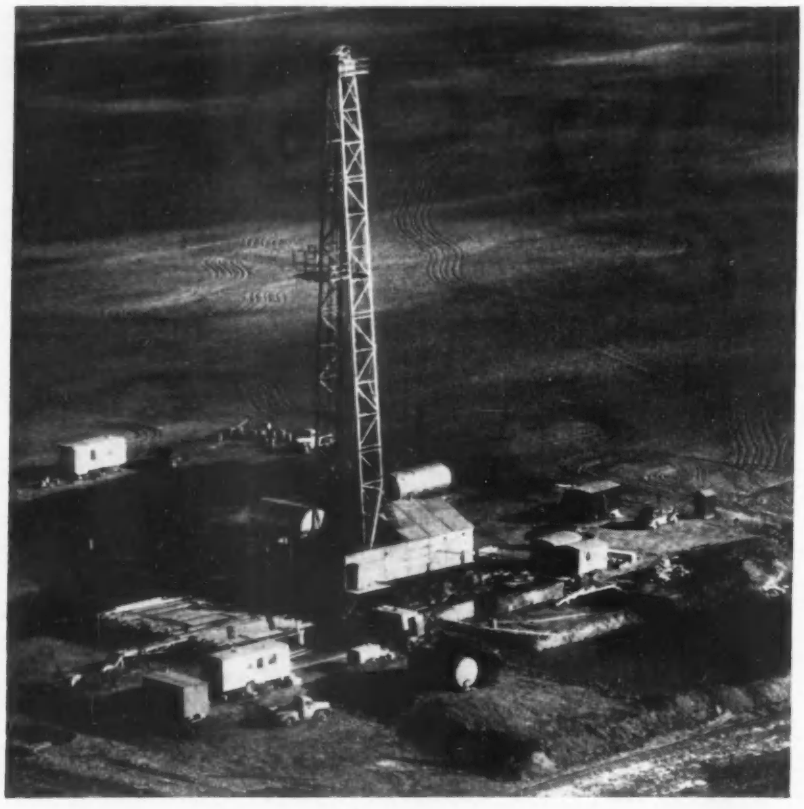
The Barney Coupling, while it is probably the greatest single development in rotary hose manufacture, is only part of your bonus when you buy Goodall rotary hose. You also get the exclusive Goodall guarantee, the Goodall Safety Clamp and the Goodall repair service.

**GOODALL RUBBER COMPANY**

TRENTON, N. J.

GOODALL RUBBER COMPANY OF TEXAS: Houston, Odessa, San Angelo, Texas.
GOODALL RUBBER COMPANY OF CALIFORNIA: San Francisco, Los Angeles, Seattle, Salt Lake City, Portland.
GOODALL RUBBER COMPANY: New York, Philadelphia, Pittsburgh, Chicago, Denver, St. Paul, Detroit.
EXPORT: Goodall Rubber Company, Trenton, N. J.
STOCKING DISTRIBUTORS: Texas and Louisiana—Houston Oil Field Material Co., Wilson Supply Co., Hunt Tool Company, Harries Sales & Rental Co.; Oklahoma—Iverson Supply Co.; Kansas—Mountain Iron & Supply Co.

# Shadows spell wealth on Canadian prairies



Over vast plains where evening shadows once silhouetted ancient trails worn by the buffalo herds, the tracks of bulldozers tell the story of thousands of oil and natural gas properties that are bringing wealth from Canada to the world.

This evolution is no new story to The Canadian Bank of Commerce. For generations, we have maintained offices throughout that region, and now have more than 150 branches in the oil field areas. Our complete Petroleum and Natural Gas Department, at Calgary, is helping oil executives in every branch of the industry to get the facts on Canadian oil fast, accurately and up-to-date.

For further information, write to our Business Development Division, Head Office, Toronto 1, Canada—or direct to our Petroleum and Natural Gas Department, 309-8th Avenue West, Calgary, Alberta.

*(We do not advise on the merits of specific oil securities)*

**THE CANADIAN BANK OF COMMERCE**

Head Office—Toronto

New York • San Francisco • Los Angeles • Seattle
Portland, Ore., and more than 700 Canadian Branches

William F. Bates

Arthur L. Brown

**William F. Bates**, named assistant to the vice president in **Shell Oil Company's** Pacific Coast area exploration and production office in Los Angeles, started with the company in 1934. In his 21 years' service, he has been San Joaquin division mechanical engineer, drilling engineer in the Los Angeles area office, general drilling superintendent, and production manager of the Coastal division. **Arthur L. Brown** replaces Bates as division production manager for the Coastal division in Ventura. He started with Shell in 1939 and, in 1953, was placed in charge of production operations at the Salt Lake City division following the Nevada oil discovery by Shell.

•

**James C. Atkinson** has resigned from the Geological department of Plymouth Oil Company to enter the consulting field, specializing in photogeology. He will establish an office in Midland, Texas. Atkinson has been closely identified with aerial photographic mapping and its various applications, principally in oil geology, for many years. With the Edgar Tobin Aerial Surveys of San Antonio from 1928 until World War II, he also was with The Kargl Company and later the Muldrow Aerial Surveys Corporation of Midland before joining Plymouth Oil in 1952.

J. C. Atkinson

•

**Ralph O. Dietler,** formerly chairman of the board of Stanolind Oil Purchasing Company, has become an oil and gas consultant. His offices will be in the Stanolind Building in Tulsa.

•

**Earl V. Hewitt,** vice president of production, **Pan American Production Company,** Houston, has been elected to the board of directors of the company. Hewitt also is vice president, manager and director of Pan American Gas Company.

•

**B. Frank Harrison, Jr.,** controller and assistant treasurer, **LaGloria Oil & Gas Company,** has been elected to membership in the Controllers Institute of America. Established in 1931, the Institute is a nonprofit management organization of controllers and finance officers from all lines of business. Total membership exceeds 1400.

*My Boss Appreciates the Best in Everything he just ordered a new*

**CAMAIR 480***

Aviation — CAMAIR — Research-Development-Manufacturing

MUNICIPAL AIRPORT – GALVESTON, TEXAS

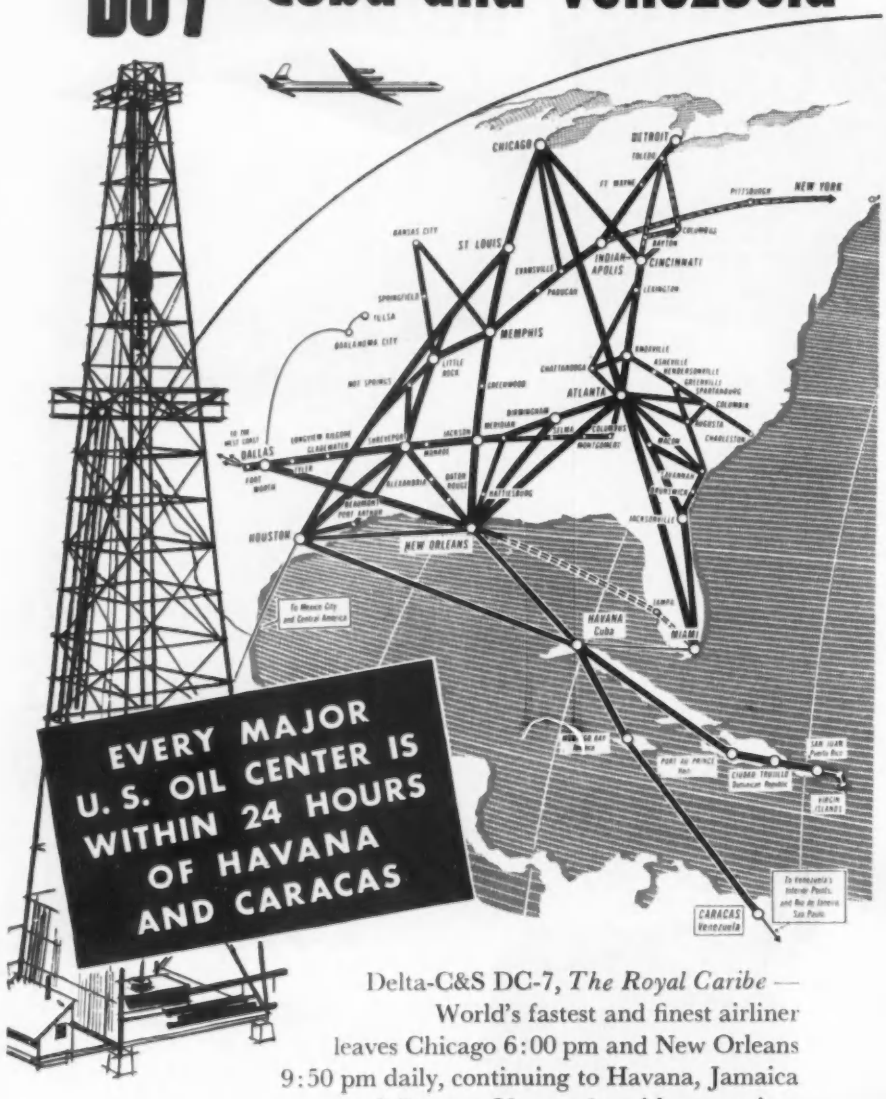
*OUT PERFORMS EVERYTHING IN ITS CLASS

DC-7

*The Royal Caribe*

GOLDEN CROWN SERVICE TO

# Cuba and Venezuela




Delta-C&S DC-7, *The Royal Caribe* — World's fastest and finest airliner leaves Chicago 6:00 pm and New Orleans 9:50 pm daily, continuing to Havana, Jamaica and Caracas, Venezuela, with convenient early morning arrival offering connections to all interior Venezuelan points.

Super Convair leaves Havana every Mon., Thurs. and Sat. at 10:00 am for Port-au-Prince, Ciudad Trujillo and San Juan. Through-plane service from the West Coast via Delta-C&S and American Airlines interchange service to New Orleans, fast connections from all points — coordinated to speed you to booming Cuba and Venezuela.

**Fastest—Most direct**
**from: HOUSTON**
**DALLAS—NEW ORLEANS**
**SHREVEPORT**
**CHICAGO—ST. LOUIS**

Delta AIR LINES

***. . . the oilman's route to Caracas!***

Ticket offices in: LOS ANGELES, DALLAS, HOUSTON, TULSA, TYLER, KILGORE, SHREVEPORT, NEW ORLEANS, CHICAGO

T. G. Schad

V. W. Fletcher

**Asiatic Petroleum Corporation** announces that **T. G. Schad**, formerly purchasing agent, has been assigned to a new position as executive assistant to the vice president in charge of the Materials department and will undertake technical assignments connected with the management of that department. Actively engaged in purchasing activities of Asiatic since 1920, Schad was appointed purchasing agent in 1945. He will be succeeded by **V. W. Fletcher**, who will assume the position of purchasing agent and supervise operations of the Purchasing division. Fletcher has been with Asiatic since 1950 and has been assistant purchasing agent since 1952. **A. Nilsson**, who joined Asiatic in 1928, has been appointed assistant purchasing agent to succeed Fletcher.

•

**Jacques L. Zakin**, senior research technologist with **Socony Mobil Oil Company's** Technical Service department, has been named the winner of Socony Mobil's 1956 Incentive Fellowship Award. Socony Mobil established the annual fellowships in 1947 to enable laboratory employes whose ability and proficiency in science and inventiveness are outstanding to further their academic training. Zakin, the fifteenth to receive the award, plans to work toward his doctorate degree in chemical engineering at New York University. Zakin first joined the Technical Service department as a summer employe in 1949. In 1951 he rejoined the staff as a permanent member in the lubricating grease group.

•

**Sohio Petroleum Company** recently named **James D. Castner** area manager at Okmulgee, Okla. He will direct all activities of the Okmulgee office, with S. C. Maples, senior geologist, and **Rex Crockett**, landman, reporting directly to him. Castner will report to **J. H. Field**, Mid-Continent division superintendent. In Sohio's Gulf Coast division, **R. J. Field** has been promoted to staff geologist reporting to the division geologist. Formerly senior geologist, he now will maintain liaison with the districts, coordinating geological material with division engineering on all exploitation problems.

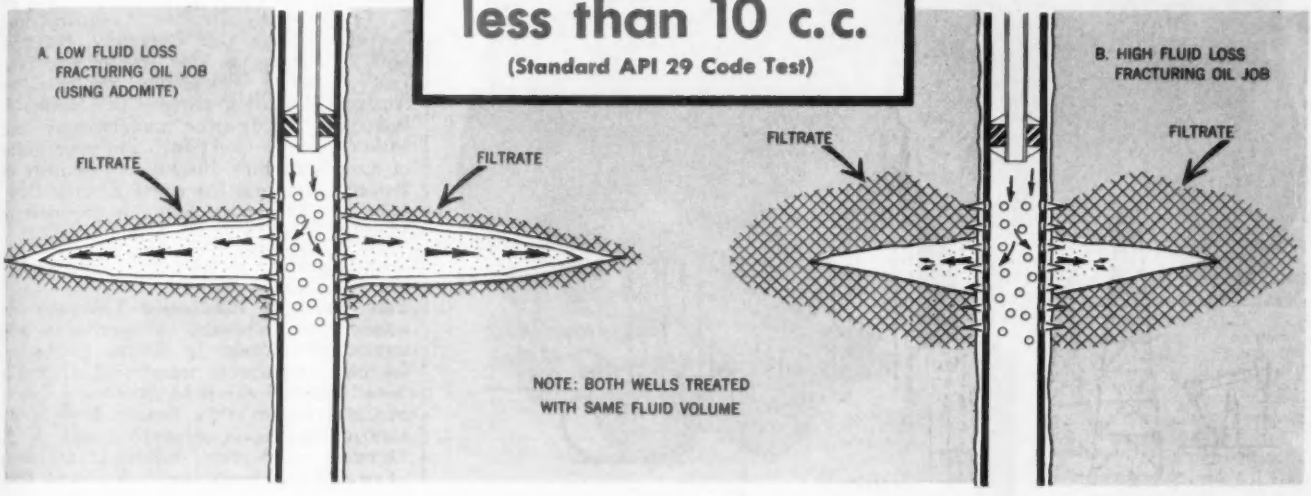
•

**H. C. Slider's** appointment as associate professor in Ohio State University's Department of Mining and Petroleum Engineering has been announced. Formerly Illinois division reservoir engineer for Shell Oil Company, he directed work of the firm's Reservoir Engineering Section in design and control of six Shell waterflooding operations in the Illinois Basin. He worked at various engineering duties in six states after joining Shell in 1949.

# For more productive fracturing... least fluid loss

# specify Adomite*

**Cuts fluid loss to less than 10 c.c.**
**(Standard API 29 Code Test)**


A. LOW FLUID LOSS FRACTURING OIL JOB (USING ADOMITE)
FILTRATE
FILTRATE
B. HIGH FLUID LOSS FRACTURING OIL JOB
FILTRATE
FILTRATE
NOTE: BOTH WELLS TREATED WITH SAME FLUID VOLUME

Adomite is the remarkable fluid-loss control additive that is building production and profits virtually everywhere it is used. Very small amounts of Adomite reduce the API fluid loss of lease crudes to 10 c. c. at most reservoir conditions. With gelled crudes, even smaller quantities are required. *Easy to use*, Adomite is a dry material in flake form that is mixed directly into the crude or gelled crudes on the lease. Only standard mixing equipment is required.

*Trade-mark, Continental Oil Company

## Only Adomite can do so many things so effectively . . .

- Seals the fracture face—minimizes fluid loss.
- Longer fractures—deeper penetration of sands.
- Greater sustained production with a given fluid volume at lower cost.
- Saves you money—utilizes lease crudes—less pumping.
- Cleans up quickly—does not contaminate produced oil or the formation.
- Fewer "Sandouts."
- Profitably used for "drilling in" and "work overs."

© 1956, Continental Oil Company

**Be sure to specify Adomite on your next fracture job**

William C. Kneale

Earl G. Bateman

Justin R. Querbes

Howard Sober

**William C. Kneale**, former Houston oil executive and newly-elected director of **Rimrock Tidelands, Inc.**, recently was elected president of the Shreveport-based oil and uranium development and producing company. General manager of Devon-Leduc Oil, Ltd., and executive vice president and general manager of its U. S. subsidiary until the time of his present appointment with Rimrock Tidelands, Kneale will make his headquarters in the company's New Orleans office. He succeeds **H. L. Rowley**, of Shreveport, who remains as chairman of the board. Prior to his association with Devon-Leduc, Kneale served 30 years in various executive capacities with The Texas Company. Starting as a geologist, he later was promoted to general superintendent for all Texas Company operations in Illinois, Kentucky, Ohio, Pennsylvania and other Eastern states. In 1946, he was named manager of the South Texas division, a position he held until his retirement in 1952. Kneale was elected a director of Rimrock Tidelands, Inc., in December, 1955. Other new directors are **Earl G. Bateman**, New Orleans drilling contractor; **Justin R. Querbes, Jr.**, Shreveport financier and insurance executive; and **Howard Sober**, pioneer in the motor vehicle transport industry from Lansing, Mich. Operator of E. G. Bateman Drilling Company and Bateman Oil & Gas Company, Bateman now is serving as vice president of the Independent Petroleum Producers of America. Querbes, partner in Querbes & Bourquin, insurance underwriters, and Motor Finance Company, also is president of Louisiana Fire Insurance Company of Baton Rouge and Interstate Electric Company in Shreveport. Sober is president of Howard Sober, Inc., Lansing.

•

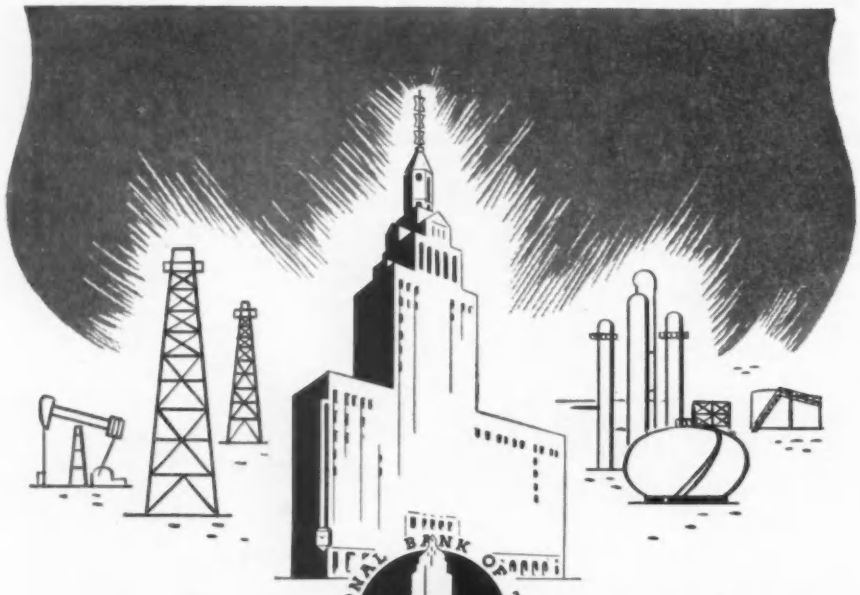
**Pan American Production Company** announces the following changes in its field personnel: **Torris J. Autin**, production foreman, has been transferred from the South Pecan Lake field, Southwest Louisiana district, to Pine Prairie field in the Central Louisiana district, and **A. R. Ogburn**, production foreman, has been transferred from the Lake Sand field, South Central Louisiana district, to the South Pecan Lake field, Grand Chenier, La. **Lee T. Champagne** has been promoted to production foreman in the Lake Sand field, Charenton, La., in the South Central Louisiana district, replacing Ogburn.

•

**W. H. Cline** has retired from **Shell Oil Company** after nearly 34 years with the organization. Supervisor of office services in Houston, he joined Shell at Tulsa in 1922, subsequently holding positions in the company's Treasury department in St. Louis and Dallas. He has worked in Houston since 1932.

•

**Homer O. Woodruff**, former assistant division manager of the Pacific Coast division of **The Texas Company**, has been promoted to assistant general manager of the Producing department, transferring to Houston. He began work with Texaco in 1933 as a roustabout at Santa Paula, Calif., progressing through various positions in producing operations and petroleum engineering. In 1948, he became assistant to the division manager and the following year was made assistant division manager of the Pacific Coast division. **Thomas W. Bell** has been promoted from division petroleum engineer to assistant division manager of the Pacific Coast division, Producing department, replacing Woodruff. Bell started with the company as a roustabout in 1934. After a series of promotions, he was named petroleum engineer for the Pacific Coast division in 1948 with headquarters in the Los Angeles offices.


For OIL LOANS

CALL ON

*The Oil Bank of America*

If your oil developments are being held up for more operating capital, see our Oil Loan officers . . . NOW!

NATIONAL BANK OF TULSA

OFFERING COMPLETE BANKING AND TRUST SERVICES

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Albert W. Shaw

Robert E. Wilson

**Albert W. Shaw,** a veteran of 37 years with the **Magnolia Petroleum Company,** retired January 1. First employed with the company as a driller in 1918, he was promoted to toolpusher the following year. For the next 14 years he supervised Magnolia rigs in both Oklahoma and Texas. In 1932 he was promoted to Gulf Coast division drilling superintendent. In this capacity he supervised the company's drilling operations from south Texas to Mississippi, including initial offshore drilling operations. Since his retirement, Shaw is associated with Edward C. Bolton of Waco as drilling superintendent.

•

**Dr. Robert E. Wilson,** chairman of the board of **Standard Oil Company (Indiana)** is chairman of the Petroleum and Natural Gas division of the Committee of American Industry, a division of the National Fund for Medical Education. The CAI is leading an appeal to raise $10 million annually for the nation's 81 medical schools. Serving with Wilson on the committee are 20 other members, all of them presidents or directors of oil, gas, and refining companies.

•

**Samuel H. Woods** has retired as division chief geologist of **Sun Oil Company's** Mid-Continent division after 34 years of service with the company. **Ronald J. Cullen,** another veteran Sun man, succeeds Woods in the division post. Woods joined Twin State Oil Company, which later became Sun's Mid-Continent division, in 1922. He served as district geologist at Okmulgee and then at Ardmore before moving to Tulsa where he became regional geologist in 1930 and later, administrative and division chief geologist. Cullen also joined the Mid-Continent division when it was Twin State Oil Company, starting in 1927. He was made assistant division chief geologist in 1954.


**Order Your Copy of 1955 World Oil Index**

**The complete editorial index covering all issues of WORLD OIL published during 1955 has been prepared and is bound separately in convenient pamphlet form. It will be sent free to all subscribers who write requesting copies.**

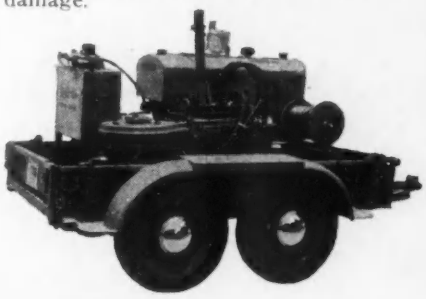
**Orders should be addressed immediately to the Librarian, Gulf Publishing Company, Box 2608, Houston 1, Texas, as quantities are limited.**



long rigid TONG HANGER Saves Wear

**Here's How...**

When tubing is being spun, the threads force the tubing to move up or down. The tong must either move with it, or else "bite" the tubing by gripping it on the bias. The Foster Tubing Tong is counter-balanced and moves up or down with the joint by means of the long, rigid tong hanger. This exclusive feature keeps the Foster Tubing Tong level, thus prevents biting and eliminates a common cause of tubing damage.



TRAILER MOUNTED to serve several rigs.

Foster

**TRAILER MOUNTED HYDRAULIC**

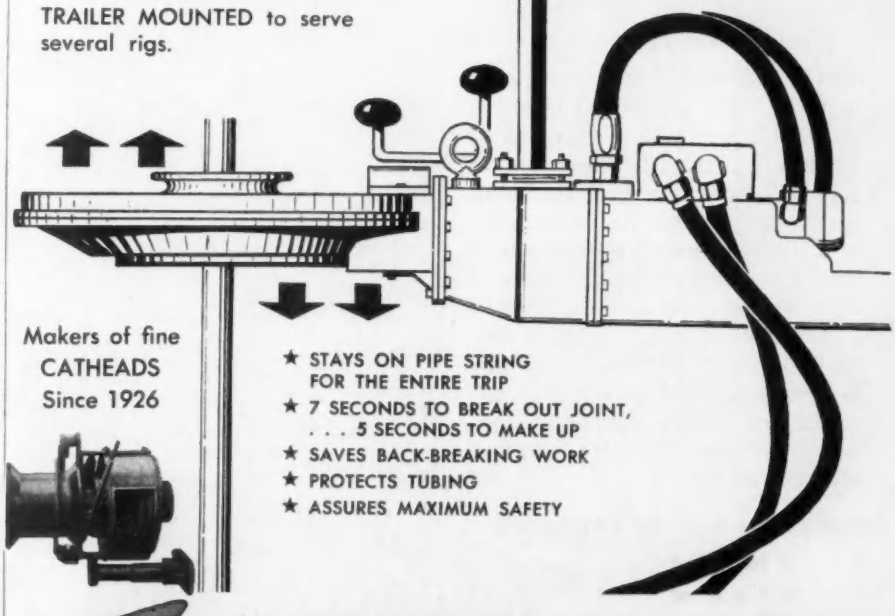
**TUBING TONG**

**ASSURES UNIFORM TIGHTENING**

The Foster Tubing Tong grips all tubing, sizes 2⅜" to 3½"—on the upset or on the small of the pipe, without changing dogs or inserts. In addition, it eliminates tubing trouble caused by improper tightening. If the operator desires the pipe made up with 500, 700 or 1,000 foot pounds, a special valve on the hydraulic line can be set so that every joint in the string will be made up to that tightness, no more nor less.

**STAYS ON PIPE STRING FOR THE ENTIRE TRIP**

The Foster Tubing Tong eliminates all time lost in putting tongs on the pipe and removing them . . . reduces break-out and make-up time to one-third of that formerly required. 7 seconds to break out joint, 5 seconds to make up joint.



Makers of fine CATHEADS Since 1926

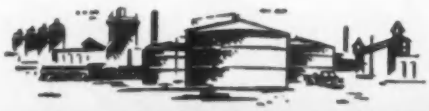


★ STAYS ON PIPE STRING FOR THE ENTIRE TRIP
★ 7 SECONDS TO BREAK OUT JOINT, . . . 5 SECONDS TO MAKE UP
★ SAVES BACK-BREAKING WORK
★ PROTECTS TUBING
★ ASSURES MAXIMUM SAFETY

Foster **CATHEAD COMPANY**
P. O. BOX 1351 — WICHITA FALLS, TEXAS
2101 GRANT ST. — PHONE 2-8653

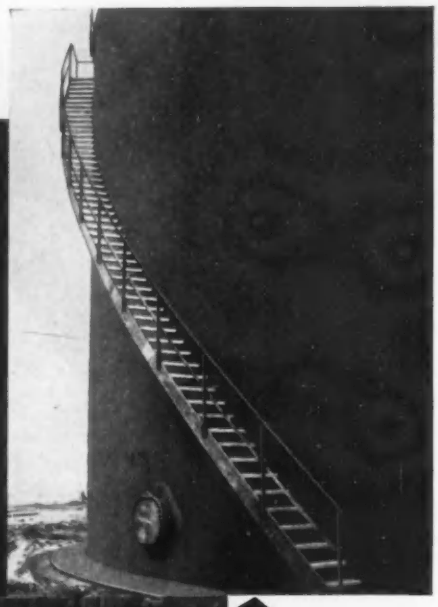
SOLD AND SERVICED BY

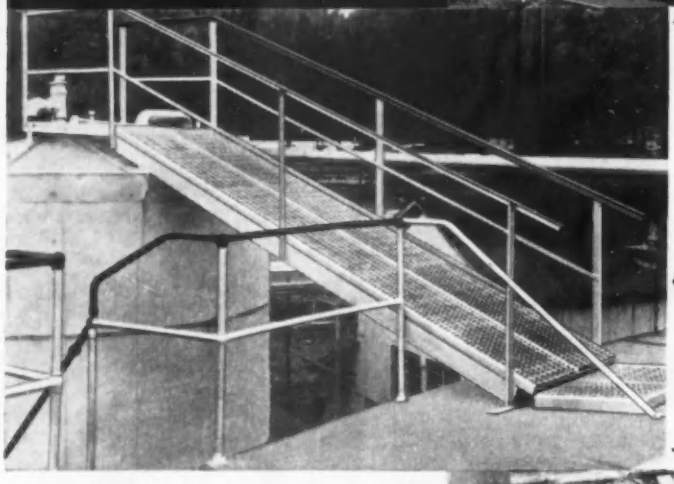
F. M. Farrier ..... Wichita Falls, Texas
Peck Sales & Service ..... Houston, Texas
Tillery & Parks ..... Odessa, Texas
Garlick Sales & Service ..... Oklahoma City, Oklahoma
Texas Warehouse Service ..... Corpus Christi, Texas
R. D. Cloninger ..... Lafayette, Louisiana
L. W. Mauck ..... Great Bend, Kansas
W. O. Nelson ..... Farmington, New Mexico
Coastal Engineering Co. ..... Bakersfield, California
Moore Specialty Company ..... Casper, Wyoming
Drexel Canadian Eqpt. Ltd., Edmonton, Alberta, Canada
Northern Well Equipment Co. ..... Tioga, North Dakota
Langley Y Cia Srl ..... Buenos Aires, Argentina
Joe Perry ..... Salem, Illinois



*Use* SAFETY
GRIP-STRUT
grating

Wherever a safe footing is required





Grip-Strut circular stairway on Shell Oil tank in Portland, Ore.

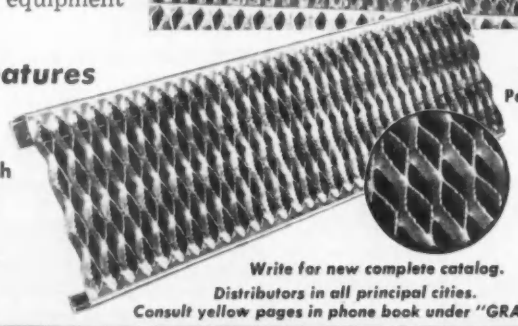
See how Shell Oil uses Grip-Strut for a safe ramp between tanks.

View looking down circular stairway on Shell Oil tank shown above.

**SAFETY GRIP-STRUT** is the new basic material, all in one piece (including channels), not welded, riveted or expanded in steel or aluminum, in standard sizes and gauges. Safety GRIP-STRUT presents an open space, in a diamond pattern, in excess of 55% of the area for ready access of light and air and gives a positive NON-SKID footing in all directions. Ideal for work platforms, stair and ladder steps, flooring, balconies, catwalks, machinery guards, fire escapes and for original equipment safety treads.

***Important Safety Features***

- ★ Fire proof
- ★ Slip proof
- ★ Maximum strength
- ★ Minimum weight
- ★ Easy to stand on
- ★ Cool in summer—warm in winter



Pat. Pending

*Write for new complete catalog.*
*Distributors in all principal cities.*
*Consult yellow pages in phone book under "GRATING"*

GRIP-STRUT division
THE GLOBE COMPANY • *Manufacturers since 1914*
4008 S. PRINCETON AVE. • CHICAGO 9, ILL.


# DEATHS

**Adrian L. Hitchcock,** wholesale jobber for The Texas Company, died December 13 in McAlester, Okla. He operated the A. L. Hitchcock Oil Company in southeastern Oklahoma.

**William Carl Hasseberg,** 78, pioneer oil well drilling contractor of Dewey, Okla., died December 13 in Bartlesville. He was with several oil companies in the Bartlesville-Dewey area before becoming a contractor in 1926. He retired six months ago.

**Wesley A. Bonar,** 83, retired pipefitter, died December 13. Bonar worked about 20 years for the Mid-Continent Petroleum Corporation before retiring 18 years ago.

**Ernest Ellsworth Wolfe,** 70, Tulsa oilman, died December 12. For a time he operated the Wolfe Brothers Drilling Company in partnership with his brother, Frank Wolfe.

**Harrison Wesley Highfield,** 67, died December 9 in Tulsa. An independent oil operator, he was well-known in the oil fields in Nowata County, Okla.

**Melvin C. Walker,** 71, retired Shell Oil Company engineer, died in Claremore, Okla., December 12. He lived in the Skiatook area a number of years.

**Dr. Ludger Mintrop,** 75, internationally known geologist, recently died in Bonn, Germany. He had worked with oil exploration along the Gulf of Mexico and made numerous contributions to the science of geophysics. The West German Federal Republic bestowed its Order of Merit on Dr. Mintrop a few days before his death in recognition of his outstanding work.

**Horace F. Gibson,** 60, independent oil producer active in Southwestern petroleum work since the early 1920's, died January 8 in Tulsa. He was a partner with C. I. Holliman, Dallas, in the Gibson and Holliman Drilling Contractors firm.

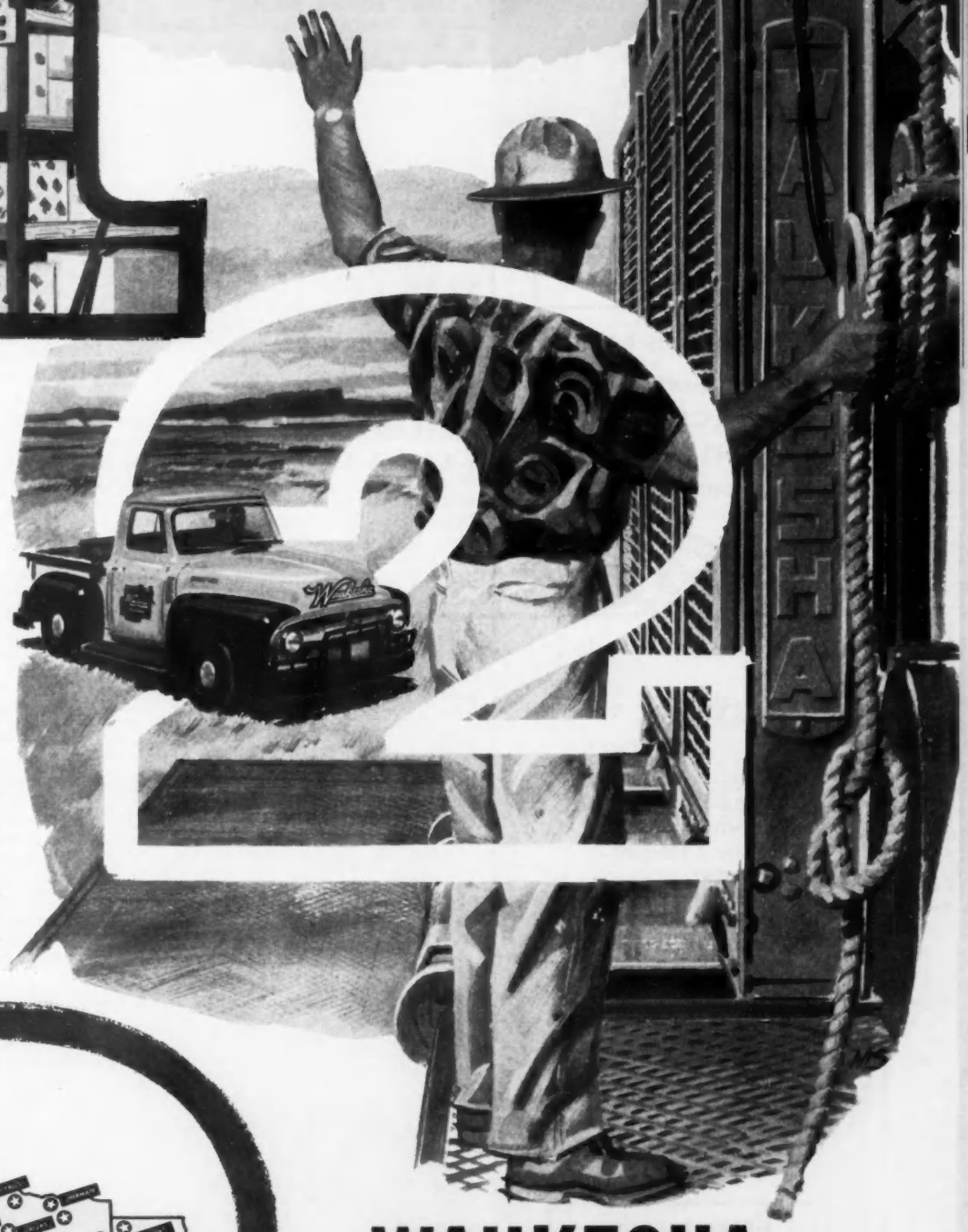
**William E. Pugh,** 55, research engineer for Seismograph Service Corporation, died January 4 in Tulsa. With the company since 1932, he was with field crews in Oklahoma and Kansas seven years before moving to the Tulsa office as supervisor. He taught in the University of Tulsa Geophysics department in 1953-54.

**T. W. Phillips,** 81, died January 2. A member of Congress for two terms, 1923-1927, he also was president of the T. W. Phillips Gas & Oil Company.

**Charles A. Ballard,** 46, died January 1 in Clinton, Miss. He was district manager of the United Petroleum Gas Company.

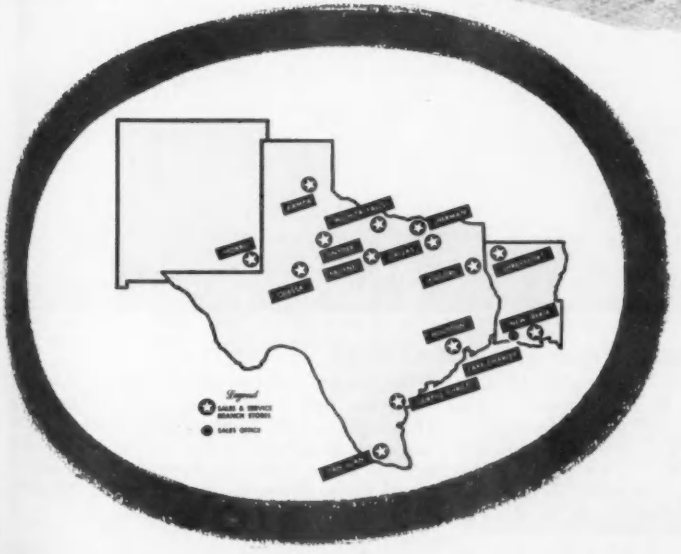
**Herbert G. Wylie,** 88, died January 3 in Los Angeles. An early-day oil magnate, he developed the vast Mexican oil interests of the late Edward L. Doheny and later succeeded him as president of the Mexican Petroleum Company. Wylie began oil drilling activities in Los Angeles and Bakersfield in 1892, joining the Mexican Petroleum Company as general superintendent of all its properties in 1902. He retired 25 years ago.

# TWO THINGS that guarantee you genuine Waukesha Parts




*. . . the Waukesha Sales & Service, Inc., emblem on the uniform of the man from whom you buy your parts and on the truck that delivers them.*

Your Waukesha engine will give its best performance only when fitted with genuine Waukesha parts. So always look for the Waukesha Sales & Service, Inc., emblem when you purchase replacement parts. Waukesha Sales & Service, Inc., branches and sales points, located throughout the oil country, carry complete stocks of engine parts, made to fit your engine and made to last, giving you the best possible performance from your Waukesha engine. So, remember the Waukesha Sales & Service, Inc., emblem the next time your engine needs a new part.



# WAUKESHA

## Sales & Service, Inc.

1422 MAURY ST. • HOUSTON, TEXAS

EXCLUSIVE DISTRIBUTORS FOR WAUKESHA PRODUCTS IN TEXAS, NORTH AND WESTERN LOUISIANA, SOUTHERN ARKANSAS AND NEW MEXICO

**WORLD'S LARGEST DISTRIBUTOR OF OIL FIELD ENGINES**

IT'S EASY

TO SELECT
A PRESSURE
OR TEMPERATURE
CONTROL FOR
ANY APPLICATION
WHEN IT'S A

MERCOID®

Write for this catalog

CONTENTS:

CONTROLS FOR PRESSURE—
DIFFERENTIAL PRESSURE—
TWO-STAGE PRESSURE—
TEMPERATURE—
TWO-STAGE TEMPERATURE
LIQUID LEVEL
FLOAT OPERATION
LEVER ARM OPERATION

CASE STYLES
TO MEET VARIOUS
REQUIREMENTS
INDOOR
(General Purpose)
OUTDOOR
(Weather Resistant)
HAZARDOUS LOCATIONS
(Explosion-proof)

ALL MERCOID CONTROLS
INCORPORATE SEALED
MERCURY CONTACTS

*Write for Catalog No. 856-G*
THE MERCOID CORPORATION
4201 Belmont Ave., Chicago 41, Ill.

# What's Happening

## AMONG INDUSTRY ASSOCIATIONS

### AIME Awards Lucas Medal To Buckley, Humble Oil

Stuart Edward Buckley, head of Production Research division of Humble Oil & Refining Company, Houston, is to be awarded the Anthony F. Lucas Medal for achievement in the field of petroleum. The award will be made during the annual meeting of the American Institute of Mining and Metallurgical Engineers, Inc., in New York February 19-23.

The citation reads, "For outstanding contributions as scientist, technologist, leader, and devoted labors as an author, bringing wide and general understanding of modern petroleum technology to industry and the public."

Buckley currently is on assignment as assistant chief geologist in the Exploration department of Humble Oil.

### Shrock Is Named Head Of SEPM for 1956-57

Robert R. Shrock, professor of geology, Massachusetts Institute of Technology, will become president of the Society of Economic Paleontologists and Mineralogists April 26, 1956. Serving with him on the 1956-57 council will be F. J. Pettijohn, Johns Hopkins University, past president; Richard V. Hollingsworth, Paleontological Laboratory, vice president; Samuel P. Ellison, Jr., University of Texas, secretary-treasurer; W. M. Furnish, Iowa State University, editor of the *Journal of Paleontology;* and Jack L. Hough, University of Illinois, editor of the *Journal of Sedimentary Petrology.*

New SEPM officers will assume office at the close of the thirtieth annual meeting of the society which will be held in the Conrad Hilton Hotel, Chicago, April 23-26.

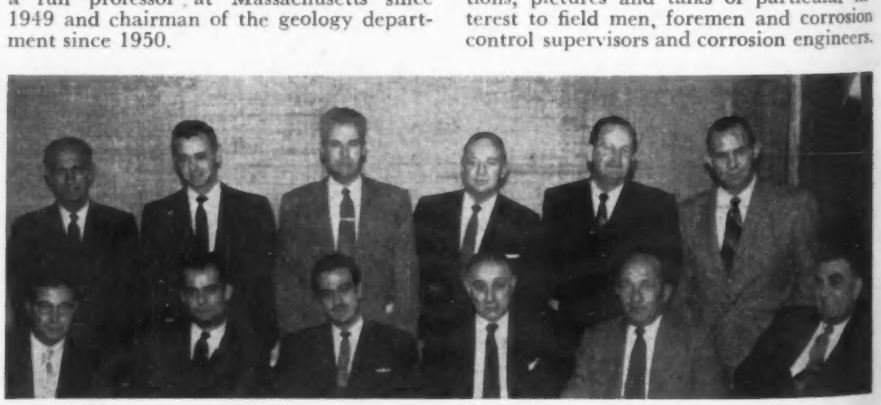
President-elect Shrock has taught at the University of Wisconsin and Massachusetts Institute of Technology. He has been a full professor at Massachusetts since 1949 and chairman of the geology department since 1950.

### *Plan Women's Program*

**Women's participation in the Oil Industry Information Committee was main topic at a recent OIIC Kansas State Committee meeting when Bunnye Lerner of New York City (seated left) explained plans for 1956. She is the OIIC's national supervisor for women's activities. Seated on her right is Helen Haden, Continental Oil Company, newly-elected president of the Wichita Oil Secretaries Association. Standing left to right are Lou Hutchinson of Socony Mobil Oil Company; C. R. McPherson, Vickers Petroleum Company, Inc., who is Kansas-Oklahoma district vice chairman for the Women's Program; and Lois Payne, Socony Mobil, who was named local vice chairman for the Women's Program.**

### Corrosion Short Course To Be Held April 3-5

The committee from the Central Oklahoma Chapter of the National Association of Corrosion Engineers in cooperation with the University of Oklahoma is planning the program of the 1956 annual Corrosion Control Short Course. To be held at the University's Extension Study Center April 3-5, the course will include demonstrations, pictures and talks of particular interest to field men, foremen and corrosion control supervisors and corrosion engineers.



### *Los Angeles Hosts International Guests*

**International guests attending a recent meeting of the Los Angeles Chapter of Nomads included, left to right, standing: W. M. Thompson of D. & E., Arabia; Robert L. Walker, Shell Oil Company, en route to The Hague; Jim Welty, Cal-Tex, Sumatra, Borneo; John Reeves, Baker Transworld, en route to Maracaibo; and Mercer Martin and Lawrence R. Garten, I. P. C., Iraq. Seated are I. P. Uitentuis, Shell, Borneo; Reza Almace, General Petroleum Company, Iran; Pedro de Garay, J. E. Douglas, Mexico; William T. Powell, president of Emsco Manufacturing Company, speaker; Joe Turner, Aramco, Saudi Arabia; and Sid Broom, I. P. C., Arabia.**

## Receive OIIC Awards

The Kansas-Oklahoma district of the Oil Industry Information Committee recently presented D. D. Dillman (center) of Gulf Oil Corporation and A. V. Bourque (right) of the Mid-Continent Oil and Gas Association with achievement awards for being the nation's most active demonstrators of the oil industry's "Magic Barrel." Presenting the awards is Robert A. Douglass of the Ethyl Corporation, district chairman of the OIIC.

## South Texas College Begins Oil and Gas Law Lectures

A non-technical course, including discussions of leases, royalties, operating agreements, governmental regulations and operating rights, began February 2 at the South Texas College Law School in Houston. The twenty-first such series, the course is designed for the laymen, both men and women, in the oil and gas industry.

Among some of the lawyers and geologists who will lecture during the 16-week series are Charles E. Shaver, speaking on rules and regulations of the Railroad Commission; E. E. Townes, relationship between the lessor and the lessee; Herman P. Pressler, governmental regulations of oil production; and James L. Shepherd, mining partnership and joint operating agreements.

## Oil Economics and Valuation To Be Conference Topics

Thirteen papers will be presented by oil industry representatives during the Petroleum Conference on Economics and Valuation to be held in Dallas March 29-30. The conference is being sponsored by the Dallas Local Section of the American Institute of Mining, Metallurgical and Petroleum Engineers.

Carl E. Reistle, Jr., production vice president of Humble Oil & Refining Company and president-elect of AIME, will speak on The Application of Engineering Valuations in Management at the meeting's opening luncheon March 29. Among the other speakers will be Fred Florence, president of the American Bankers Association and president of the Republic National Bank of Dallas; Ralph E. Davis, petroleum and natural gas consultant; J. J. Arps, vice president of British American Oil Producing Company and chairman of the Dallas Local Section; J. E. Warren, vice president of the First National City Bank of New York, and A. H. Chapman and J. Terry Duce, Arabian American Oil Company.

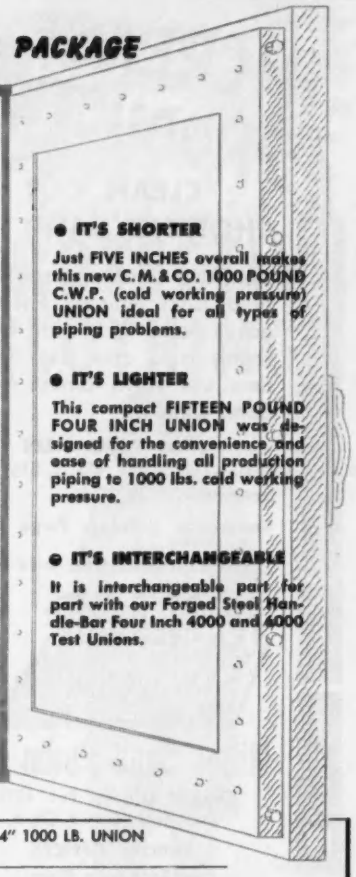
Some of the topics will be factors affecting value of undrilled properties; estimation of primary oil reserves; tax considerations in various oil transactions; application of the bank loan in the oil business; corporate financing and foreign oil.


*Now* THE BEST IN A SMALL PACKAGE

NEW 4" 1000 LB. C.W.P. HANDLE-BAR UNIONS

easily opened and tightly closed

Are Doors to the Pipeline



● IT'S SHORTER

Just FIVE INCHES overall makes this new C.M.&CO. 1000 POUND C.W.P. (cold working pressure) UNION ideal for all types of piping problems.

● IT'S LIGHTER

This compact FIFTEEN POUND FOUR INCH UNION was designed for the convenience and ease of handling all production piping to 1000 lbs. cold working pressure.

● IT'S INTERCHANGEABLE

It is interchangeable part for part with our Forged Steel Handle-Bar Four Inch 4000 and 6000 Test Unions.

MAIL THIS COUPON TODAY!

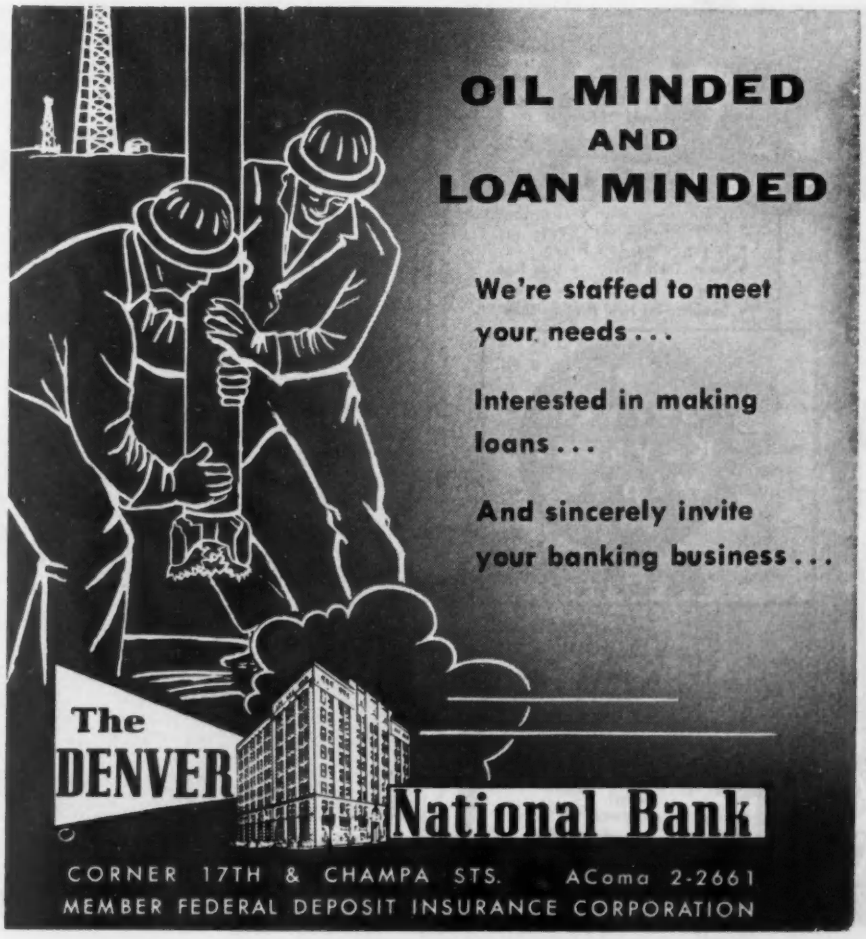
PLEASE SEND THE COMPLETE STORY AND PRICES ON THIS NEW 4" 1000 LB. UNION

NAME_____

ADDRESS_____ CITY_____ ZONE____ STATE_____

CLAYTON MARK & COMPANY • 1900 DEMPSTER ST. • EVANSTON, ILL.





OIL MINDED AND LOAN MINDED

We're staffed to meet your needs . . .

Interested in making loans . . .

And sincerely invite your banking business . . .

The DENVER National Bank

CORNER 17TH & CHAMPA STS. AComa 2-2661

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

INCREASE PRODUCTION

CLEAN OUT CHOKING SAND

Excessive sand and sediment holds back your oil. For fast, easy clean out with fewer round trips and less down-time, use world famous Miller Sand Pumps.

SAND PUMP SIZES
O.D.—2½, 3, 3½, 4¼, 5, 5½, 7 In.
Lengths—20, 25, 30 ft.

Composite Catalog, Page 3369

Write for descriptive price list.

MILLER SAND PUMPS

Miller Sand Pump Co.
General Offices, Box 4516
Oklahoma City 9, Okla.

EXPORT OFFICES
30 Rockefeller Plaza
NEW YORK CITY 20, N. Y.

# Companies in the News

**HOUSTON OIL COMPANY OF TEXAS** will sell to Atlantic Refining Company for an estimated $224 million, subject to approval of the Houston firm's stockholders. The 55-year-old Houston Oil owns an interest in 750 oil wells and 220 gas wells, with most of the production in Texas plus some interests in Louisiana and Wyoming. Houston Pipe Line Company, wholly owned by Houston Oil, operates 715 miles of pipe line. Atlantic will become a partner with Sinclair Oil & Gas Company in operation of oil properties in the three states. Sinclair last year purchased American Republics Corporation which was joint owner with Houston Oil of the majority of production. Houston Oil's gross land under lease totals 696,638 acres. Production acreage amounts to 130,244. The company owns a half interest in mineral fee with Sinclair of 868,783 acres. Harold Decker, president of Houston Oil, has announced that no changes in management or personnel of his company are planned.

•

**STANOLIND OIL AND GAS COMPANY** is building a new addition which will double the size of the heavy experiment laboratory building at the company's research center in Tulsa. The new addition, to be completed in early February, will expand facilities for research in drilling, muds and fluids, corrosion and secondary recovery projects. Measuring 40 by 50 feet, the addition will house three experimental wells—100, 200 and 800 feet deep—to be used in simulating field drilling tests, evaluation of sub-surface field equipment, testing flow characteristics of mud and other fluids. The wells also provide a method for testing corrosion inhibitors.

•

**THE CARTER OIL COMPANY** and The University of Oklahoma Research Institute have signed a long-term $20,000-a-year contract for research and development work relating to the micro-behavior of fluids in porous media. The contract extends through the summer of 1958. Dr. **Alfred Chatenever,** research engineer for the Institute, will direct the program. The entire problem of extracting all oil from a reservoir will be investigated.

•

**TEKOIL CORPORATION'S** purchase of all oil and gas properties of Kio Oil and Development Company has received stockholder approval and has been completed. Tekoil assumes operating control of 131 producing oil wells in Indiana, Illinois, Oklahoma and Texas along with 3000 acres in undeveloped leases. Price involved is in excess of $1 million. Executive offices are in Robinson, Ill., with operating and engineering offices in Oklahoma City. Present Tekoil operations are underway in Illinois, Indiana, Kentucky, Oklahoma and Texas.

24 HOUR SERVICE

ACME OIL TOOL CO.

- Competent Operators
- Rotary Fishing Tool Service
- Spang Cable Tools • Drill Pipe
- Blow Out Preventers • Rentals
- Complete Oil Field Machine Shop

for Servco Keyseat Wipers call ACME

OKLAHOMA CITY
MElrose 7-2426
Healdton, Okla.
Phone 155
WICHITA FALLS FISHING TOOL CO.
3-1437
GREAT BEND FISHING TOOL CO.
Great Bend 7819
Borger, Texas
Broadway 3-5031
Liberal, Kansas
Main 4-3222
ACME-METEX TOOL CO.
Hobbs, New Mexico Ph. 3-2172

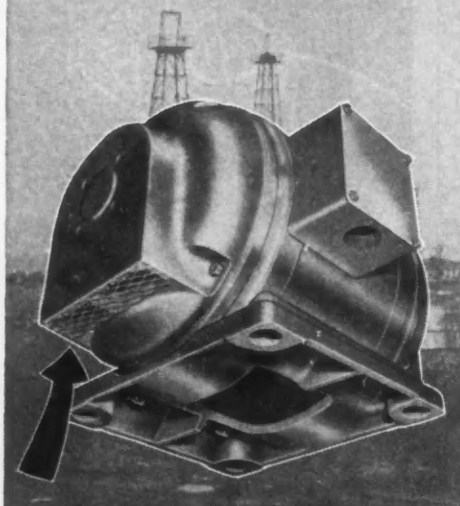
GOING FISHING? ACME CALL YOUR FRIEND!

get ALL the facts

and you'll choose

FIELDMASTER

BALL BEARING MOTORS



Like a book, you can't tell a motor by its cover; it's what's **inside** that counts.

FIELDMASTER Ball Bearing Motors, for example, have been specially designed and built to more than handle the rugged requirements of oil field use. High slip is available to take care of reciprocating load requirements encountered in pumping . . . wide variety of windings provides triple ratings, dual voltages . . . high torque licks heavy starting problems . . . high-grade silicon steel in the magnetic circuit reduces iron losses . . . heavy-duty, double-shielded pre-lubricated bearings increase performance, reduce lubrication problems . . . heavy cast base assures alignment stability.

These are just a few of the many facts which prove FIELDMASTER Ball Bearing Motors are second to none. Our distributor, the Bethlehem Supply Company, will gladly supply you with ALL the facts . . . **without obligation.** May we have them contact you?

Screened Air Port Keeps Out Rodents!

VALLEY ELECTRIC CORP. 4221 FOREST PARK BLVD., ST. LOUIS, MO.
Distributor, BETHLEHEM SUPPLY CO., TULSA, OKLA.

### New Rig Joins Fleet

**Kerr-McGee's Rig 45, newest addition to the company's Gulf Coast drilling fleet, is beginning to make hole on its first well in the Ship Shoal area off Terrebonne Parish, Louisiana. Designed by Kermac's marine engineering staff, the self-contained drilling barge, officially designated an offshore mobile platform drilling unit, can operate in water up to 35 feet deep.**

**CONTINENTAL OIL COMPANY** has established a district production office at Plainville, Kansas, and reorganized the company's production department in Kansas. Construction of a new Conoco office building at Plainville is underway, with completion expected by February 1. **L. E. Powell,** former area foreman at Palco, has been promoted to district superintendent at Plainville, and **K. J. Querry,** Palco, has been named district chief clerk. Production foremen who will supervise the new Plainville district's field operations in northwestern Kansas will be **O. K. Alkire,** transferred from Lyons, **W. E. Henry,** Jennings, and **H. S. Hudson** and **J. W. Thomason,** both of Palco. Others transferred to Plainville to complete the new district office staff will be **J. J. Lehman,** Great Bend; **J. D. Morrow,** Jennings; **D. C. Phillips,** Susank; and **R. G. Wilson,** Palco. In addition to establishing the new district office, Conoco will rename its former West Kansas district the Great Bend district. District offices will contine to be at Great Bend under the supervision of **F. L. Dunn.** Also, the company's former East Kansas district will be renamed the Lyons district. Offices will continue to be at Geneseo, with **Lewis McGuire** as superintendent. Conoco will continue to maintain Kansas division production offices at Wichita.

•

**DELHI-TAYLOR OIL CORPORATION** has moved the Kansas-Oklahoma production office from Chanute, Kansas, to Tulsa. **Ernest W. Adams** is superintendent, with **Llewellyn O. Ward** as engineer.

•

**HALBERT, JENNINGS & SIMIC** is the new firm name of Halbert & Jennings, independent oil operators with offices in Denver. Dolphe E. Simic, whose name has been added to that of the company, became associated with the firm as a partner in 1954.

**SAVE** Time - Trouble
Labor - Money
**End** CORROSION
Internal and External

with proved products of the American Sand-Banum Co., Inc.

**SAND-BANUM**
Pure Colloidal Concentrate
for ALL types
of Boilers

Ounces only once a week safely and automatically removes and prevents boiler scale and corrosion without tools, manual labor or shut-downs. You get more power from less fuel.

**SAND-BANUM SPECIAL**
In Handy Tablets
For ALL Radiator Cooling
Systems – Stationary or Mobile

Regular use of Sand-Banum Special maintains the cooling system free from rust, crust, sludge, dirt, oil, grease and lime; any and all clogging matter.

*Also*

**SABCO**
Rust Preventive Aluminum paint; 2 coats in one application

**RUSTEND**
Clear Rust Arrestor—Rust Preventor

**SABANOL**
For clean and complete fuel oil burnability

Stocked by Leading Supply Houses
GULF COAST DISTRICT REPRESENTATIVES
Western Sand-Banum Company, 705 M & M Bldg., Houston 2, Texas
Colloid Products Co., 2825 Storey Lane, Dallas, Texas

AMERICAN SAND-BANUM CO.
ESTABLISHED 1926
MEADOW BROOK NATIONAL BANK BUILDING
FREEPORT, NEW YORK
SAND BANUM



*We challenge you*
to find better
**PROTECTIVE CLOTHING!**

illustrated above: ¾ length coat

*Sawyer*

For every industry where personnel protection and safety are vital, *only* Sawyer Neoprene Latex Clothing offers *all* these advantages:

- **100% protection against oils, chemicals, alkalies, abrasion — and other hazards!**
- **"Exclusive Coating Process" . . . (for years and years of extra wear and durability) — *original* with Sawyer!**
- **guaranteed not to peel, blister or crack in ordinary usage!**
- **double interlocked sewn seams that can't come apart!**
- **solid brass or non-conductive fastenings that can't rip off or corrode!**
- **designed for roomy, action-free comfort!**

Sawyer clothing also Rubberized or Oiled. Full range of jackets, pants, coats, hats, aprons for *more* efficiency, *more* economy, *more* protection on every job!

*Make us prove it!*

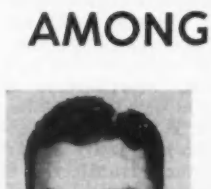
Send for complete details and price list.
**The H. M. Sawyer & Son Company**
*A Division of Sawyer-Tower, Inc.*
*Specialists in Protective Clothing for more than a century*
7 Thorndike St., Cambridge 41, Mass.

# What's Happening

## AMONG SERVICE AND SUPPLY MEN

Kenneth H. Gayle

Hal S. Phillips



Scott T. Lutz

Jack W. Lyon

David G. Willis

A. T. Robertson

**Kenneth H. Gayle, Jr.**, former president of Ingalls Iron Works Company, has been elected president of **Delta Tank Manufacturing Company, Inc. Hal S. Phillips**, president of Delta since 1946, has been elected chairman of the board of the Baton Rouge firm, a wholly-owned subsidiary of General Gas Corporation. He will continue to serve as treasurer of General Gas. Gayle served as president of Ingalls from 1951 through September, 1955. He joined Ingall's Engineering and Sales department in Birmingham in 1923 after a year with the American Bridge Company of Penncoyd, Penn.

**Scott T. Lutz**, now manager of the Kansas district of **U. S. Steel's** Oil Well Supply division, will headquarter at Wichita, Kansas. Lutz joined Oilwell in 1937 at Hutchinson, Kansas. After serving at Wichita, McPherson and Stafford, Kansas, he was made city representative at Wichita, his position prior to his present appointment.

**Jack W. Lyon**, has been appointed sales engineer for the Gulf Coast division of **Welex Jet Services, Inc.** A veteran of over 20 years work with oil well service companies, he joined Welex in early December. Lyons started in oil field work in the late 1930's as a driller's helper.

**David G. Willis**, new publications and publicity assistant of **Magnet Cove Barium Corporation**, will assist in the editing of the company's internal publication and preparation of publicity material. Before joining Magcobar, Willis was account executive and publicity director with Goodwin-Dannenbaum Advertising. Previously he was a member of the editorial staff of PETROLEUM REFINER, published by Gulf Publishing Company. **A. T. (Robby) Robertson**, with Magcobar since 1952, has been named personnel director. Prior to the appointment, he was located in McAllen, Texas, as field service engineer for the company.


# HEAD OF THEIR CLASS

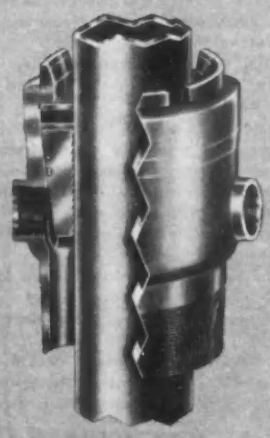
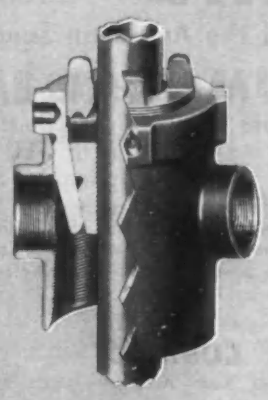


**FIG. 91**

**Simplicity and compactness, for ease of installation and neatness of hookup, are incorporated into the Larkin Casing Head (2000 psi test, 1000 psi working pressure.) It is designed to provide a safe and economical means of suspending and packing off casing strings. This head has been tested to support 225,000 lbs., equivalent to 5600' of 7", 20-lb. casing with a safety factor of 2.**



**TYPE L**

**A new member of the Larkin Well Head line, the Type L Tubing Head fills a need in low pressure areas where economy may be effected with complete safety. It is forged steel construction, full opening, 2000 lb. psi, top of body threaded 7" API to accommodate control equipment, hinged three-segment slips, 2" or 3" side outlets.**

**For detailed information on these and other Larkin Tubing and Casing Heads, please refer to your Larkin Catalog or talk to your Larkin Representative. All Larkin Equipment is available through your supply store.**

LARKIN LEADERSHIP HAS BEEN EARNED

**Universal Atlas Cement Company** has announced the retirement of **Raymond L. Walsh**, assistant vice president and chief engineer, after 30 years of service. **Chester D. Rugen** has been appointed assistant vice president—engineering, and **Robert B. Jordan**, chief engineer. Walsh will continue with the company in a consulting capacity.

**John W. Kiser**, recently appointed district manager of the West Texas district of **Lane-Wells Company**, has been with the firm since 1946 when he served as perforating and radioactivity well logging operator. Later he was sales engineer and subdistrict superintendent in Mississippi and assistant district superintendent in south Louisiana. Prior to his appointment as district manager, Kiser was district superintendent of the Arklatex district.

**United States Steel Corporation** recently named **Charles H. Bell**, president of General Mills, Inc., a director of the corporation. Bell joined General Mills in 1930, becoming research-production coordinator in 1946, vice president in 1947 and president in 1952. At U. S. Steel, he succeeds **Sewell L. Avery** who recently retired from the board after serving as a director since 1931.

**The Continental Supply Company** announces the appointment of **Roscoe O. Hambric** to the newly-created position of general merchandise manager. Since 1954, he had been assistant division manager of the Kansas-Oklahoma division, with headquarters in Tulsa. In his new position, Hambric will be in Dallas where he will supervise and direct operations of the Purchasing, Material Control and Traffic departments and will coordinate, in collaboration with divisional management, all divisional merchandising functions. Hambric started with Continental in the Seminole, Okla., store in 1946.

**Paul R. Minich, Jr.**, formerly a Yale representative as president of Materials Handling Products Corporation, has been named general sales manager of the Materials Handling division, **The Yale & Towne Manufacturing Company. Joseph J. Murray**, veteran Yale sales department executive, has been named to a newly-created post of assistant general sales manager. Minich founded Materials Handling Products Corporation in Syracuse, N. Y., in 1949. He formerly held executive positions with the Chrysler Corporation, Taylor Instrument Company, Brown Instrument Company and the Rack Engineering Company. Murray, who has had more than 20 years of service in the Yale industrial lift truck sales force has been New York branch manager, sales training manager and last held the post of electric industrial truck sales manager.

**John O. J. Shellenberger**, vice president, has been appointed director of marketing of the **American Chemical Paint Company.** In his new capacity, Shellenberger will supervise sales and marketing activities of the firm's three main divisions: Metalworking Chemicals, Agricultural Chemicals, and the International division. He carries into this new position a background of 20 years' experience in metalworking and agricultural chemicals, both in the U. S. and abroad.

**Charles M. Powell, Jr.**, has been named safety director of **Geophysical Service, Inc.** He was formerly coordinator of GSI's correspondence training program, a program designed to keep field personnel up on technical developments in application of geophysics to petroleum exploration. His position will be taken by **Ben F. Giles**, formerly chief of a GSI field party. Both Powell and Giles will be headquartered at the firm's Dallas office.

**Edward J. Massaglia** has joined **Atlas Powder Company** as assistant general manager of the chemicals division. He formerly was vice president and director of Pfizer International, Inc., serving with that organization from 1951 to 1955. Prior to that, he was engaged in development and manufacturing work for Chas. Pfizer & Co., Inc., parent company of Pfizer International. He also served as development engineer for Niagara Alkali Company and production manager for Benzol Products Company.

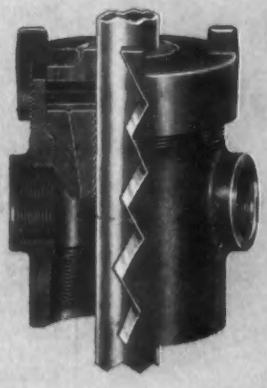
**J. Ryan Walker**, recently named supervisor for the **National Geophysical Company**, will make his headquarters in Shreveport, La. Prior to joining the company, Walker was chief geophysicist for Arkansas Fuel Oil Corporation at Shreveport.

**Herbert K. Kingsbury's** appointment as manager of product sales, centrifugal pump section, **Allis-Chalmers** Norwood Works, has been announced. Kingsbury joined Allis-Chalmers in 1943, serving as application engineer in the firm's West Allis Works before transferring to Norwood Works in 1952.


# for medium pressure wells

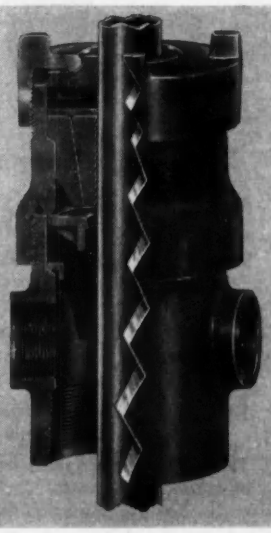
**TYPE R**

**The Larkin Type R. Tubing Head is a conversion from the Type SR Head. This ease of conversion makes it possible to use the same stripper adapter and Neoprene stripper when working on any well equipped with a Larkin Tubing Head.**



**TYPE SR**

**The Larkin Type SR Tubing Head is a slip suspension head, equipped with a Neoprene Stripper which serves as a blow-out preventer and oil saver while tubing is being pulled or run. It is very suitable where higher pressures might be encountered.**



**LARKIN PACKER COMPANY, INC.**
**WAXAHACHIE, TEXAS**

LARKIN
...Through Your Supply Store

PESA
PARTNERS IN PETROLEUM PROGRESS

**BY YEARS OF DEPENDABLE PERFORMANCE**

R. K. Grobholz

David M. Salls

M. E. Swaim

Thomas B. Herndon

Robert A. Doonan

Elmer V. Mrozek

**R. K. Grobholz** has been appointed manager of the **Worthington Corporation** Power Pump Sales division with headquarters at the Oil City, Penn., Works. He succeeds **A. F. Welsh**, newly-appointed manager of the Marketing Research division. Grobholz joined Worthington as a test engineer in the Harrison Works Research and Development Lab in 1943. In 1954 he was named manager of the reciprocating pump sales section, the position he held until his present appointment.

**David M. Salls'** appointment as home office manager of the Gas and Oil Industry Sales Engineering section has been announced by **The Cooper-Bessemer Corporation.** In the new position, he will be responsible for coordinating efforts of the home office engineering group directly supporting Cooper-Bessemer's field sales activities to the petroleum industry. Salls joined the company in 1941, later moving to Texas Eastern Transmission Corporation as mechanical engineer. Since his return to Cooper-Bessemer in 1951, he has headed various engineering programs.

**M. E. Swaim** has been named general manager of sales by **The National Supply Company.** This is a newly-created position that covers all company products. **Thomas B. Herndon** has been named to succeed Swaim as manager of oil field sales. Swaim joined the company in 1925 at Tulsa and served subsequently in various sales and field engineering capacities at Wichita, Kansas, and Clay City and Olney, Ill. He was appointed sales manager, production equipment, in 1948, and general manager of oil field sales in 1954. Herndon joined the company as a student engineer in 1936. From 1940 to 1950 he served in Trinidad and Venezuela, then returned to the U. S. as a development engineer.

**Hammond Iron Works Company** recently announced the appointment of **Robert A. Doonan** as sales engineer attached to the Birmingham, Ala., district sales office. With ten years' experience in design and operation of chemical and petrochemical processing plants throughout the country, Doonan has been sales engineering representative for a number of research and manufacturing companies.

**Elmer V. Mrozek** has been named to represent the Hydreco and Dudco divisions of **The New York Air Brake Company** in the greater Chicago area, with headquarters at LaGrange, Ill. In his capacity as sales engineer he will handle hydraulic motors, pumps, valves, cylinders and other hydraulic products of the New York Air Brake divisions. Mrozek formerly was with Donnell Hydraulic Company and Badger Machine Company.

**Aetna Ball and Roller Bearing Company,** division of Parkersburg-Aetna Corporation, has appointed **Thomas Swartwout** as its sales representative for northern Ohio. He replaces **H. A. Anderson** who was assigned to the Detroit area following the retirement of **F. W. Meile.** Swartwout, formerly with the Bound Brook Oil-less Bearing Company, has had extensive sales experience in the territory he will cover for Aetna.

Be Safe — Be Sure — IT'S A KING

AR Wire Line Stripper
*Latch Collar not shown*

YOU ALWAYS HAVE
CONTROL
*with a* KING
Wire Line Stripper (Auto-Releasing)

POSITIVE LATCH
will not release by accident or surge of pressure.

SURE RELEASE MECHANISM
operated by rope socket striking bottom of stripper.

NON-SPARKING MATERIALS
eliminate hazard of fire from this tool.

CONVENIENT HAND HOLDS
makes for easier handling at all times.

SIDE OPENINGS
permit repacking while the wire line is in the hole.

These wire line strippers represent an outstanding advance in design and construction of tools in this class.

Sometimes referred to as "wipers" or "oil savers", they provide the oil industry many advantages that were not previously available.

*Export:* R. S. STOKVIS & SONS
17 Battery Place, New York 4, N. Y.

KING OIL TOOLS
7944 DOCKAL ROAD • HOUSTON, TEXAS • ORchard 3-3421

R. L. Forsythe

Charles R. Miller

**Russell L. Forsythe** and **Charles R. Miller** have been promoted by **Schlumberger Well Surveying Corporation.** Forsythe has been named assistant manager of the Pacific Coast area with headquarters in Los Angeles; Miller has been promoted to manager of the Kansas division, replacing Forsythe. Before joining Schlumberger in 1937, Forsythe had been with General Electric, Ford Motor Company and Paraffine Companies, Inc. He served as assistant area manager in Canada for Schlumberger from 1950 to 1952, and was manager of the Kansas division from 1953 to 1955. Miller served as a field engineer in Ardmore, and was manager of the Duncan location in 1947. He was manager of the Oklahoma City district and assistant to the Oklahoma division manager, before being named assistant Kansas division manager in 1954.

**Hycalog, Inc.,** has appointed **Max I. Brown** head of the new branch office in Dallas and has transferred **Chester Green** to Oklahoma City to head the Oklahoma-Kansas district. Brown formerly was assistant district manager and diamond coring supervisor in the Gulf Coast district, with headquarters in Lafayette, La. Green was transferred from the Michigan area.

**The First National Bank and Trust Company of Tulsa** announces that **R. Otis McClintock,** president, will become chairman of the board, succeeding **F. L. Dunn** who is retiring from the post. Dunn will continue, however, as a member of the board of directors. **R. Elmo Thompson,** executive vice president, will become president, and **E. F. Allen,** executive vice president, will become vice chairman of the board and chairman of the executive committee. **Russell F. Hunt,** vice president and assistant to the president, will become executive vice president and a member of the board; and **J. P. Byrd, Jr.,** senior vice president, will be given the added title of assistant to the chairman.

**D. Frank Mederos,** elected vice president and assistant to the president of the **Walworth Company,** has been with the organization 35 years. In addition to his new duties, he will continue to have charge of all sales of Walworth products in Canada. The company's Eastern division and Boston branch sales also will continue under his direction.

**American Car and Foundry Division—ACF Industries, Incorporated,** announces the appointment of **Norman E. Carlson** as director of engineering. In addition to his new duties, he also will continue as works manager of the St. Charles, Mo., plant. Carlson joined ACF in 1951 as assistant chief mechanical engineer, and in 1954, was appointed works manager of the St. Charles plant. From 1933 to 1943 he was with Swift and Company and the Grey Van Lines.


*lost circulation*

**Strata-Fiber**
TRADE MARK

**IS THOROUGHLY DRY**

Seventy per cent of **Strata-Fiber** is dehydrated fibers from the inner rind of sugar cane bagasse. But these fibers have been so thoroughly dried that you buy *more* active lost circulation material per pound than with any similar product. This extra drying plus the fact that **Strata-Fiber** is made from the tough inner rind makes it your best buy in a fibrous lost circulation material.

**Strata-Seal**
TRADE MARK

**Strata-Seal** has both a plugging and a bridging action. The perlite particles pack tightly in the fractures of the formation. This tight packing strengthens the troublesome formation making it more impermeable, thereby less susceptible to reoccurrence of lost circulation. Can be obtained from drilling mud distributors.

GLC®

**GREAT LAKES CARBON CORPORATION—PERLITE DIVISION**
**1204 Prudential Building**
**Houston, Texas**

## New SSC Headquarters in Tulsa To House Offices, Laboratories

The construction of a new $800,000 facility to house general offices and laboratories of Seismograph Service Corporation has been announced. The new plant will consist of two buildings to be located on 20 acres of land southeast of Tulsa.

Scheduled for completion in November, 1956, in time for SSC's 25th anniversary, the buildings will be the headquarters for the exploration firm now working in 20 countries.

The main building, to be a two-story structure, will house Lorac and other electronic and development laboratories. The building will be equipped with modern facilities for manufacturing, testing and assembly operations. The second structure will bring the floor space of the plant to 70,000 square feet. This smaller building will be used for assembly and servicing of vehicular field equipment.

## Vinson Supply Company Opens Store in New Mexico

Vinson Supply Company's new store at Farmington, N. M., the company's fifth largest warehouse facility, provides office and warehouse space in excess of 10,000 feet. The new facilities mark Vinson's first active participation in the San Juan Basin; other warehouses are in Tulsa, Dallas, Odessa and Amarillo, Texas. Lynne Witherspoon, a veteran of eight years in the supply business, transfers from Vinson's Odessa store as manager at the new location.

WHEELING
COUPLINGS
FOR OIL COUNTRY USE
LINE PIPE COUPLINGS A.P.I.
⅛" to 12"—Seamless and Special Processed—Black or Galvanized
PLAIN TUBING COUPLINGS A.P.I.
1" to 4"—Seamless
EXTERNAL UPSET TUBING COUPLINGS A.P.I.
¾" to 3½"—Seamless
CASING COUPLINGS A.P.I.
4½" to 13⅜"—Long or Short
HYDRAULIC COUPLINGS
⅛" to 4"—Seamless
REAMED AND DRIFTED A.I.S.I.
¾" to 12"—Seamless or Special Processed
DRIVE PIPE COUPLINGS
⅜" to 12"—Seamless or Special Processed
TOP QUALITY Since 1918
Sales Offices in Leading Cities
Albany, N. Y.—Albert L. Becker, 434 Clinton Ave.
Baltimore, Md.—Ted Barto, 2301 N. Charles St.
Chicago, Ill.—Harry A. Jay, Suite 1090, Old Colony Bldg.
Denver, Colo.—Earl H. Jones & Co., 1863 Wazee St.
Detroit, Mich.—R. W. Lang, Jr., 505 Park Avenue
Erie, Pa.—R. J. Maggi, Box 711
Falmouth, Mass.—Walter S. Bennett, 53 Minot St.
Houston, Tex.—Henry H. Paris Distributor, Inc. Box 932
Los Angeles, Cal.—James A. Riordan Co., 1400 Santa Fe Ave.
Louisville, Kentucky—Sid. Schultze Co., 514 W. Main St.
Milwaukee, Wisconsin—M. A. Nelson Co., 3347 N. 97th St.
Minneapolis, Minn.—Lin J. Krause, 5605 Lyndale Ave. S.
Narberth, Pa.—J. W. Worthington, 105 Forrest Ave.
Newark, N. J.—Ira L. Rothenberg & Assocs., Industrial Office Bldg., 1060 Broad St.
New York, N. Y.—Max Rothenberg, 11-05 38th Ave., Long Island City
Oswego, N. Y.—Northeastern Associates, Neil Chatterton, Secy., P. O. Box 284
Portland, Ore.—Earl H. Jones & Co., 1233 NW 12th Ave.
Richmond, Va.—P. C. Abbott & Co., 15 E. Franklin St.
San Francisco, Cal.—Earl H. Jones & Co., 1150 Folsom St.
Seattle, Wash.—Earl H. Jones & Co., 819 Thomas St.
WHEELING MACHINE PRODUCTS COMPANY
WHEELING, WEST VIRGINIA
Factories at WHEELING, W. VA. and WOODLAKE, CALIFORNIA


## Malcolm W. Black Named Chiksan Representative

Malcolm W. Black Company, Inc., has been appointed representative for Chiksan Company, Brea, Calif., with territory comprising southern New York and northern New Jersey. The Black organization will handle the entire line of Chiksan and WECO products including Chiksan swivel joints and WECO unions. Black's headquarters are at 41 East 42nd Street, New York City.

## Houston Export Companies Establish New York Office

Lee Construction Corporation, export crating firm, Lee Shipping Company, foreign freight forwarders, and the Lee Corporation, crane and industrial rental equipment, have expanded present facilities by opening a New York office.

Located at 21 West Street, the new office is under the direction of John W. Reagan, manager. Formerly outward freight manager for Fern-Ville Far East Line's Gulf/Far East service, he also served in the U. S. Maritime Service after having been affiliated with Getz Bros. & Company and Ford Motor Company.

## PGAC Management Conference Reviews 1955; Forecasts 1956

Executives of Perforating Guns Atlas Corporation recently met at Houston with the company's management men from general and branch offices for the annual Management Conference. Operations during 1955 were analyzed and plans completed for again expanding logging, perforating and other services in 1956. Capacity operations were reached at the new ten-acre Houston main plant in 1955 and many operations had to be continued in the old plant. Additional main plant facilities are an urgent part of the 1956 planning.

## Republic Supply Company Is Roebling Distributor

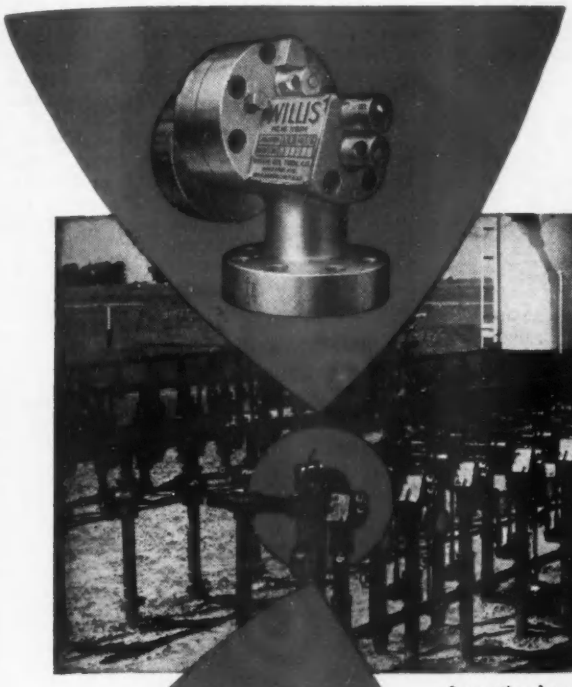
The Republic Supply Company of California is now distributor for products of John A. Roebling's Sons Corporation in California, Arizona and Nevada. Republic's 15 sales headquarters and branch stores will make the Roebling products more readily available to the territory. A full line of wire rope cables and accessories will be carried in stock by Republic.

## Two Building Expansions Underway at Halliburton Plant

Two major building expansions are being undertaken by Halliburton Oil Well Cementing Company at its Duncan, Okla., headquarters. Construction has begun on a four-story addition for Halliburton's main office building at Plant One. The other major expansion is a new wing at the company's main Technical Center building, adjoining Halliburton Plant Two. Preliminary excavation work already is in progress on this.

Both projects, to be completed within eight months, are part of Halliburton's current expansion program.

The main office addition will increase by 28,000 square feet the building's present 45,600 square feet. The Technical Center addition will add 19,020 feet to the present 32,250 foot area. The main office addition will have four stories.




# 6 ways better

## *flow control*

**PROVIDES 6 different sized choke inserts which are individually positioned in the line of flow by a fractional turn of the orifice-carrying disc . . . under constant flow and high pressure.**

**The 6 graduated orifices are changed to a new range in minutes...without shutting-in the well.**

**A positive shut-in is made by inserting a blank orifice.**

**An entire lease is controlled accurately and precisely in minutes through this battery of Willis Rotary Adjustable Chokes.**

**WILLIS**
*Rotary Adjustable*
**CHOKES**

**WILLIS OIL TOOL COMPANY**
**3440 Pine Ave., Long Beach 7, California**
**Houston: 2012 Taft Street** **Odessa: 100 N. Texas Street**

## For Field or Office

We provide the fastest and most economical source of

### Pre-Printed Stock Forms

Over 50 different forms are stocked for immediate shipment. These include daily drilling reports, daily production reports, scout reports, lease records, royalty records, payroll sheets, inter-office memos, stock record cards and vouchers.

Now in general use throughout the industry, these forms may be ordered in any desired quantity. Their utility and economy have been demonstrated by the thousands of satisfied users.

Write for a **free copy** of
"Stock Forms Catalog"

Stock Forms Dept.
**The Gulf Publishing Company**
P. O. Box 2608, Houston 1, Texas

40 YEARS EXPERIENCE
40,000 MILES
PIPELINES are NOT sidelines with . . .
WILLIAMS BROTHERS
W
ENGINEERS and CONSTRUCTORS
OIL • GAS • WATER • PRODUCTS PIPELINES AND PUMPING STATIONS
WILLIAMS BROTHERS NATIONAL BANK OF TULSA BLDG.
TULSA, OKLAHOMA • CABLE ADDRESS: WILLBROS.
BRANCH OFFICES: CALGARY • TORONTO • MINNEAPOLIS • NEW YORK
ATLANTA • LOUISVILLE • WASHINGTON • NEW ORLEANS
CARACAS • BOGOTA • LA PAZ • FAIRBANKS • LONDON, ENGLAND

Naim Rafidi

David A. Rowland

James C. Savage

J. A. Spannagel

## Four Lane-Wells Scholarships Given in Petroleum Engineering

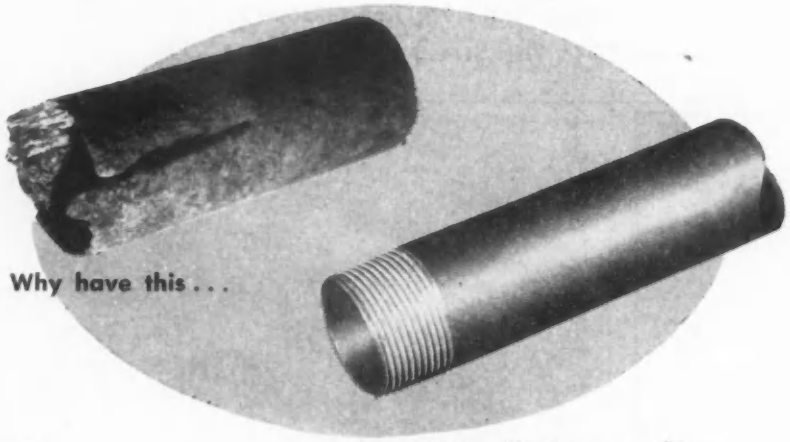
The Lane-Wells scholastic program, established in 1952 to commemorate completion of the firm's first 20 years, has entered its fourth year and announcement has been made of the first grants for 1955-56. During its first three years, Lane-Wells fellowships or scholarships were awarded 32 students in 10 colleges or universities to aid in completion of their petroleum engineering studies. Selections were made by the schools on the basis of scholastic record, sincerity of purpose, character and need.

Former scholarship or fellowship winners included students from Israel, Egypt, England and Canada, as well as the U. S.

The first four fellowships awarded this year have been granted to: Naim Rafidi, University of Oklahoma; David A. Rowland, University of Texas; James C. Savage, California Institute of Technology; and Johnny A. Spannagel, Texas A&M.


**TK-2 PLASTIC LININGS**

***Dependable*** **protection against corrosion and paraffin deposits...**




when TK-2 will give you this.

TK-2 dependability as protection against corrosion and paraffin deposition is being proved every day in major oil fields throughout the world.

The reason for this dependability is Tube-Kote workmanship: Careful inspection of every process — cleaning, sandblasting and multiple applications — and with every phase carefully controlled by exacting Tube-Kote engineers.

Learn why TK-2, the thermo-bonded plastic lining for pipe and tubing, is the specified choice of so many major companies. Write for free 1956 TK-2 brochure.

TUBE-KOTE T.M. REG.

**TUBE-KOTE, INC.**

P. O. Box 20037
Houston 25, Texas

PIONEERS IN PLASTICS SINCE 1939
MANUFACTURERS-EXTRUDERS OF PLASTIC PIPE FOR THE OIL INDUSTRY
FACTORY TRAINED, FIELD SERVICE ENGINEERS ARE AVAILABLE FOR CONSULTATION IN ALL PRINCIPAL OIL AREAS. WRITE TODAY FOR FREE LITERATURE.


## Rockwell Manufacturing Begins Meter Production in Canada

Rockwell Manufacturing Company of Canada, Ltd., has begun production of Rockwell meter products in Canada for the first time in its Guelph, Ontario, plant and has opened a new sales office at 91 Eglinton Avenue, Toronto.

Complete meter servicing facilities and warehouse space also have been added to the Guelph plant. The Toronto office is the first opened by the Canadian subsidiary of Rockwell Manufacturing Company, for sale of meter products.

## Axelson Announces $1 Million Aircraft Plant Expansion

The Axelson Manufacturing Company, Division of U. S. Industries, Inc., has announced an expansion of its aircraft manufacturing plant at Montebello, Calif., representing an investment over $1 million.

The new plant of 120,000 square feet will adjoin the present Axelson Montebello plant on 35 acres near the intersection of Slauson and Anaheim-Telegraph Road. Its construction will be similar to the existing Axelson plant and will provide increased manufacturing facilities for aircraft landing gear and components. It also will consolidate all Axelson aircraft manufacturing activities and release space in the Vernon Headquarters plant which will be devoted exclusively to petroleum and machine tool manufacturing.

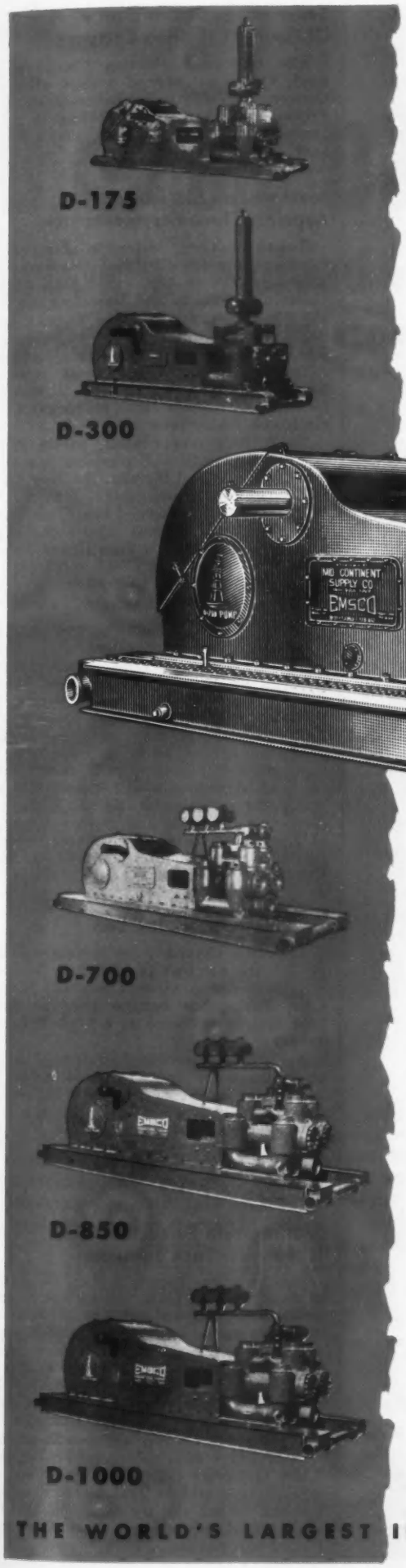
## Oil Center Tool Offers Rights On Dual Completion Equipment

John Maher, president of Oil Center Tool Company, Houston, has announced that the company is offering manufacturing rights for dual completion wellhead equipment under its patent No. 2,335,355 to all valve and wellhead equipment manufacturers on a non-royalty basis. This patent represents one of the earliest and more important engineering advances relating to dual completion methods and procedures, Maher said.

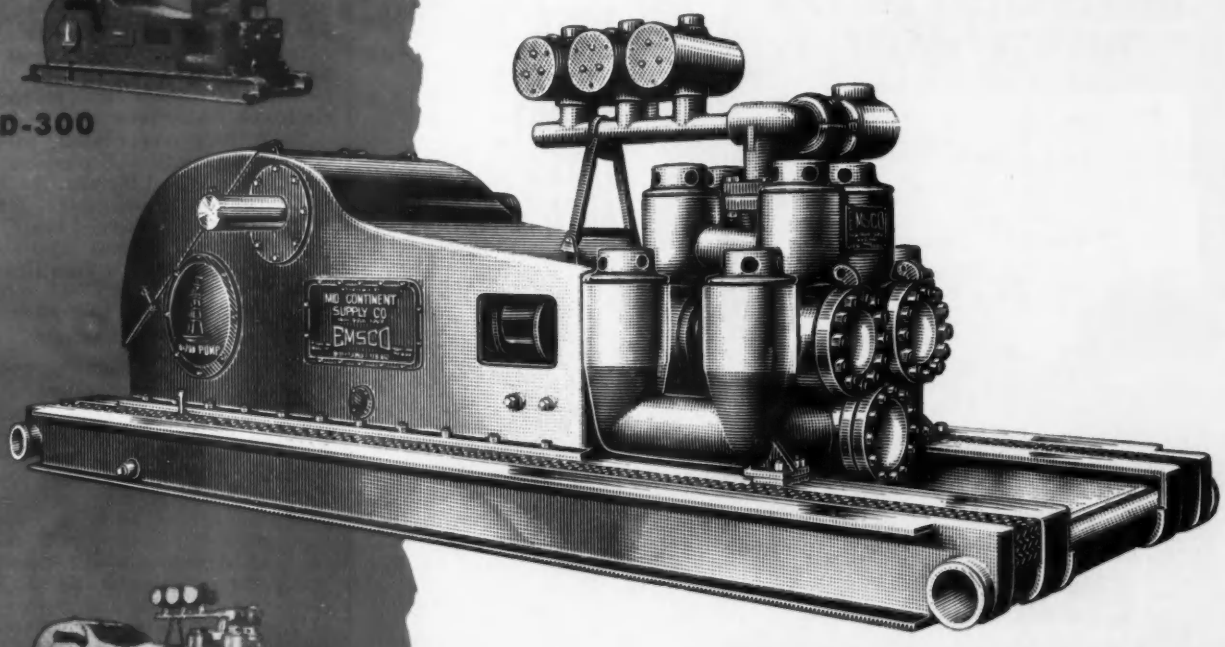
O-C-T filed for its original patent September 11, 1939. The patent was granted November 30, 1943. Dual completion equipment, as designed and developed by Oil Center Tool Company, eliminates the necessity of drilling a second well to reach the second producing formation.

## Homco Begins Operations In Canada; Opens Office

Houston Oil Feld Material Company, Inc., recently has opened operations in Canada with offices at 10351 60th Avenue E., South Edmonton, Alberta. Hoyt N. Johnson of Casper, Wyo., is in charge of operations in that area. Personnel working under Johnson are Buddy Pylate, fishing tool supervisor; William Ottenhouse, field engineer; Drew Almond, string shooting supervisor; Carl Orth, fishing tool supervisor; and Harold Streit, directional drilling engineer.




# NOW-EMSCO DA-500
## SLUSH PUMP




## OFFERS IMPROVED FLUID END FEATURES FOR JET BIT DRILLING

The Emsco DA-500, with its heavy duty fluid end, uses the same big-pump fluid end design as on the D-700 and D-1000 pumps . . . with such features as full flow fluid passages, tentative API valves and seats, heavy cross threaded valve pot covers, exposed liners secured by center-studless cylinder heads, quick break connections for pony and piston rods and fluid pulsation dampeners in addition to all of the quality features which have made Emsco pumps famous for dependable performance and low cost operation.

***For complete information on Emsco Pumps for every drilling requirement, contact your nearest Mid-Continent store or representative.***

PESA
PETROLEUM EQUIPMENT SUPPLIERS ASSOCIATION
PARTNERS IN PETROLEUM PROGRESS

# MID-CONTINENT
## Supply Company

MID-CONTINENT BLDG. • FORT WORTH, TEXAS

EXCLUSIVE EXPORT DISTRIBUTORS
EXPORT DIVISION • 45 ROCKEFELLER PLAZA • NEW YORK, N. Y.

THE WORLD'S LARGEST INDEPENDENT OIL FIELD SUPPLY COMPANY

The IVERSON SUPPLY STORE in Kermit, Texas serves West Texas and Eastern New Mexico oil fields with the finest, most complete service possible.

In this territory IVERSON SUPPLY STORES are known for the speed and efficiency with which customers orders are filled. All equipment handled by IVERSON SUPPLY STORES is backed by the IVERSON Guarantee of Satisfaction.

IVERSON SUPPLY STORES

**OKLAHOMA** — Oklahoma City, Okmulgee, Tulsa.
**NEW MEXICO** — Artesia, Farmington.
**TEXAS** — Kermit, Odessa, Sherman, Snyder.

IVERSON SUPPLY CO. OIL WELL SUPPLIES

OFFICES: FT. WORTH, DALLAS & MIDLAND, TEXAS

**IVERSON SUPPLY COMPANY**
DRILLING-PRODUCTION AND REFINERY EQUIPMENT
GENERAL OFFICES
P. O. BOX 1439 TULSA 1, OKLA.

OFFICES: DENVER, COLORADO TULSA, OKLAHOMA


## Baker Heads Denver Office Of George E. Failing Company

The George E. Failing Company of Enid, Okla., has opened a sales office in Denver, with Clyde E. Baker in charge. Previously Baker served Failing as field engineer at Houston and as branch manager at Hattiesburg, Miss., and Los Angeles.

## Southwestern Electronics Appoints Three Representatives

Southwestern Industrial Electronics Company has named three manufacturers representatives to handle SIE Products in California, Nevada and New England.

J. T. Hill Company, San Gabriel, will handle the Southern California territory. The firm, which has been in the electronics sales business over 25 years, recently moved to a new building with all modern facilities for repair and maintenance of electronic instruments.

C. E. Ault Associates, Menlo Park, Calif., will handle SIE products in northern California and Nevada. Six New England states will be covered by R. A. Waters, Inc. Waltham, Mass. This company, one of the largest in its area, maintains a branch office in New Haven, Conn.

## Brazos Oil and Gas Company Absorbed by Dow Chemical

The Brazos Oil and Gas Company, a wholly-owned subsidiary of The Dow Chemical Company since it was formed in 1946, has been absorbed by the parent company and will become the Brazos Oil and Gas Company division of Dow. Headquarters will continue in Houston and personnel, headed by L. B. Swan as division general manager, will remain unchanged. Activities of the division will be under the direction of Dr. A. P. Beutel, Dow vice president and general manager of the Texas division. Until the merger, Beutel was president of Brazos Oil and Gas.

## Syntron Company Will Operate As Subsidiary of Link-Belt

Link-Belt Company has announced that a plan for exchange of shares between Link-Belt and Syntron Company, Homer City, Penn., has become effective. Syntron will be operated as a Link-Belt subsidiary.

Syntron has developed equipment in the electromagnetic and electronic fields. It has plants in Homer City and Blairsville, Penn., and Stony Creek, Ont., and distributes its products principally through sales subsidiaries with offices in 54 cities. Link-Belt is a manufacturer of materials handling, processing and power transmission machinery.

## Southwestern Porcelain Steel Is National Tank Subsidiary

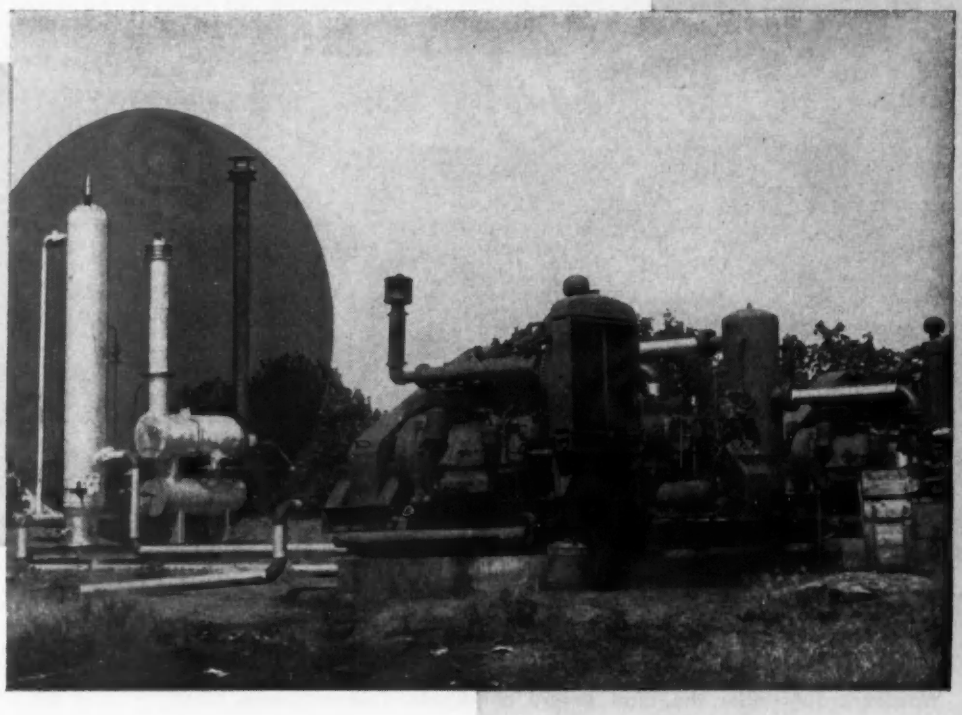
Southwestern Porcelain Steel Company of Sand Springs, Okla., which has become a wholly-owned subsidiary of National Tank Company, will continue to operate under its own name. Jay P. Walker, president of National Tank, will be chairman of the board of the subsidiary with John Lauder, president of the porcelain company, continuing in the same capacity.

The new ownership will permit fabrication of heavy steel pieces at the National Tank Company plant. One new item of manufacture will be prefabricated service stations. In the past the company has supplied porcelain walls and other equipment for service stations.

# Difficult Dehydration

## problems solved with M-C UNITS in series with Compressors . . .

**If you are having difficulties in gas dehydration in conjunction with compression because of: low pressures; high temperatures; flow surges; ground and piping vibrations — Maloney-Crawford has the answer.**



Maloney-Crawford Glycol Dehydration units are especially adaptable for use in series with compressors. Because of our experience on many installations involving dehydration upstream, interstage, and downstream of compressors, Maloney-Crawford field engineers are fully qualified to make equipment recommendations on dehydration problems. Proper placement of the dehydrator and advice on pressure control and economical cooling devices can often result in lower initial cost, better dehydration and lower maintenance costs for the gas producer. Our engineers are available to discuss your problems.

**MALONEY-CRAWFORD TANK AND MANUFACTURING CO.**

FACTORY AND GENERAL OFFICE: 38 North Peoria—Box 659—Tulsa, Oklahoma
EXPORT REPRESENTATIVE: Baird Lines—1017 Grand Central Terminal Bldg., New York 17, N. Y.
CANADIAN REPRESENTATIVE: Maloney-Crawford Tank & Service Company, Ltd.—Edmonton.
TEXAS PANHANDLE REPRESENTATIVE: Atlas Tank Company—Pampa, Texas.

MALONEY-CRAWFORD TANK & MFG. CO.

# New Books, Maps and Movies

**STANDARD OIL COMPANY (INDIANA)** by Paul H. Giddens, Appleton-Century-Crofts, Inc., 35 West 32nd Street, New York 1, New York. $7.50.

Presenting the complete story of Standard of Indiana and its operations, this documented history was drawn, first hand, from private papers and records of the company and from personal interviews with leading company executives and employes. Illustrated with many tables, charts and photographs, the book tells the story of the organization which began as a branch of the Standard Oil combination and grew to be the fourth largest industrial corporation in the U. S.

From its beginning in 1889, through the period that marked the dissolution of the Standard "Trust," and its emergence in 1911 as a separate and independent company, Stanolind's development is traced through the years up to the end of 1951. Every operating aspect is covered in detail —exploration, production, refining, transportation, research and marketing. The complex inner workings of the organization, including the background of the famous proxy battle for control waged between Colonel Stewart and Rockefeller, are revealed. And the role the company has played in development of the petroleum industry, the nation and especially in the growth of the Middle West is an important part of the story.

•

**STRUCTURAL GEOLOGY FOR PETROLEUM GEOLOGISTS** by William L. Russell, McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, New York. $7.50.

All topics that have no actual relation to oil work, although usually included in the study of structural geology, have been omitted from this book designed especially for use by the petroleum geologist. Conversely, data and information, not ordinarily a part of structural geology but of value in oil geology, such as reversed drag along faults and structural control on sedimentation, are discussed in detail.

Problems, illustrations and text material have been selected to enable the geologist to visualize structures in three dimensions. A laboratory section is included to aid in development of the three-dimensional concept and to help the geologist acquire techniques for representing structural conditions important in oil work.

•

**STRUCTURE AND STRATIGRAPHY OF THE OUTCROPPING PENNSYLVANIAN ROCKS IN THE TIPTOP QUADRANGLE, BREATHITT, MAGOFFIN, AND KNOTT COUNTIES, KENTUCKY,** Chief of Distribution, Geological Survey, Washington 25, D.C. 50 cents.

A previously unrecognized fault and associated anticlines are shown on a new map of eastern Kentucky prepared by the Geological Survey as part of the program of oil, gas and coal investigations in the state. Structural features favorable for oil and gas exploration in the eastern part of the state also are shown.

•

**DIGEST, VOLUME 23,** J. R. Maxey, Tulsa Geological Society, Jenkins Building, Tulsa, Okla. $2.

The Tulsa Geological Society's digest for 1955 includes the proceedings of the society's meetings during the year. Profusely illustrated with maps, drawings and photographs, the publication covers Ouachita Facies of Texas and Oklahoma, facies control of oil occurrences, geology of Grayson County, Texas, and other subjects. Lists of theses from the Universities of Oklahoma, Tulsa, Missouri, Kansas, Arkansas and Texas are included.

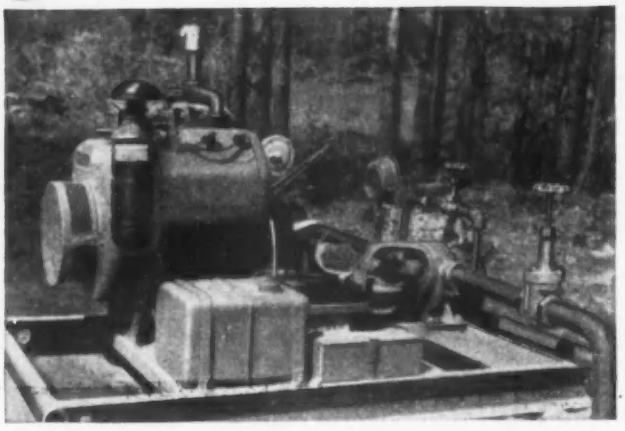
•

**MINERALS MAP,** Oklahoma Geological Survey, Norman. 75 cents.

A new minerals map of Oklahoma now available shows mineral raw materials, exclusive of coal, natural gas and petroleum, plus producing and processing facilities and energy sources such as hydroelectric plants, natural gas lines and power plants. The 26 by 45-inch map is on a scale of about 11.4 miles to an inch. It supersedes the out-of-print map of 1944.


WISCONSIN Powered **OIL FIELD UNIT**

**Pumps 30 bbls. per hr. at 600 lbs. pressure**



Pumping heavy viscous oil, this unit delivers about 30 bbls. per hour at 600 lbs. pressure. Dependable Lugging Power is supplied by an open type Wisconsin Model VF4D V-type 4-cylinder engine. It is operating in southern Oklahoma.

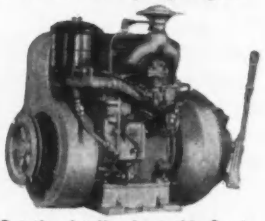
This Wisconsin engine is equipped with clutch reduction and operates on natural gas. Being of the "open" type, easier repairs and adjustments are greatly facilitated.

Weatherproof under the most severe conditions, this engine is ideally adapted to rugged, self-sufficient service in out-of-the-way locations and is rapidly becoming one of the most popular models in oil field service.

Heavy-duty construction features include tapered roller bearings at both ends of the crankshaft, high tension rotary type outside magneto with impulse coupling for easy starting at low cranking speed in any weather, Stellite-faced exhaust valves, positive type valve rotators and solid Stellite valve seat inserts for long engine life and minimum maintenance—plus extremely efficient AIR-COOLING even at high atmospheric temperatures.

You can't do better than to specify "Wisconsin Power" for your oil field units. Wisconsin Engines are available in complete power range from 3 to 36 hp.

**Model TFPD**
**Oil Well Pumping Engine**



Get the details about this 2-cylinder Wisconsin Oil Well Pumping Engine with built-in High Momentum Factor.

**WISCONSIN MOTOR** Corporation
MILWAUKEE 46, WISCONSIN
World's Largest Builders of Heavy-Duty Air-Cooled Engines

WRITE TO HARLEY SALES CO.
619 SOUTH MAIN STREET • TULSA, OKLAHOMA
3420 McKINNEY AVENUE • HOUSTON, TEXAS
905 SOUTH MAIN STREET • WICHITA, KANSAS
OIL FIELD DISTRIBUTORS FOR WISCONSIN ENGINES AND ALL TYPES OF UTILITY UNITS

A 8488-1½-LO

*"The Golden Foot"* is coming up!

During 1956 Core Lab will analyze its *millionth foot of core*. The sample may come from a well in Canada, or East Texas, or Venezuela. It may be one of hundreds of feet of core shipped thousands of miles from Saudi Arabia to Dallas.

It may be analyzed in Midland, New Orleans, or Farmington — or in any one of Core Lab's thirty-three permanent installations servicing all active drilling areas. While this event will be duly celebrated throughout Core Lab, processing the millionth foot will represent a momentous endorsement of core analysis as a basic science in the optimum development of reserves.

The first foot of commercial core analysis was performed to supply the missing link of reservoir information between "a rainbow on the slush pit" and non-quantitative measurements. Today, as we approach The Golden Foot, there is still no adequate substitute for surface evaluation of the basic product — the formation and its contents.

**CORE LABORATORIES, INC.**
801 CORE STREET, DALLAS, TEXAS

CORE LAB
PETROLEUM RESERVOIR ENGINEERING

DALLAS, HOUSTON, CORPUS CHRISTI, MIDLAND, ABILENE, SAN ANTONIO, TYLER, LIBERAL, FT. WORTH, WICHITA FALLS, SHERMAN, OKLA. CITY, TULSA, ARDMORE, BARTLESVILLE, PAMPA, ARK. CITY, GT. BEND, NEW ORLEANS, SHREVEPORT, HATTIESBURG, LAFAYETTE, DENVER, BAKERSFIELD, CASPER, BILLINGS, WORLAND, STERLING, EL DORADO, LUBBOCK, FARMINGTON, LOVINGTON, MONAHANS, SAN ANGELO, CALGARY, EDMONTON, REGINA; VENEZUELA, S. A.

OLD SLUSH POND GETTING YOUR GAUGES?

**REPAIR THEM!**

Throwing away worn gauges is expensive. Save ½ to ⅔ the cost of a new one with our dependable, quality repair service. All work guaranteed. Fast return.

**TULSA GAUGE AND INSTRUMENT CO.**

1133 N. UTICA • TULSA, OKLA.



CARBON-BAKELITE PISTON RINGS

.. HIGHEST EFFICIENCY WITH LEAST WEAR!

For your gas compressors, you need a highly effective, low friction material not affected by wet or sour gases.

FRANCE MAKES THEM!

Write for Complete Information

**FRANCE PACKING COMPANY**

9927 Bustleton Ave., Philadelphia 15, Pa.

# SQUEAKS from the BULLWHEEL

### The Ways of Women

'Way back, shortly after the Creation, Adam left the Garden of Eden with no explanation and returned three nights later, again with no explanation of his absence. Tearfully Eve accused him of infidelity, which Adam scoffed off with the comment that any such idea was absurd since there were no other women on earth at the time.

Eventually Eve's tears were allayed and she returned to a more serene humor. But as they fell asleep together, she gently counted his ribs.

### Post-Courtship

"Do you still act toward your wife as you did before you married her?"

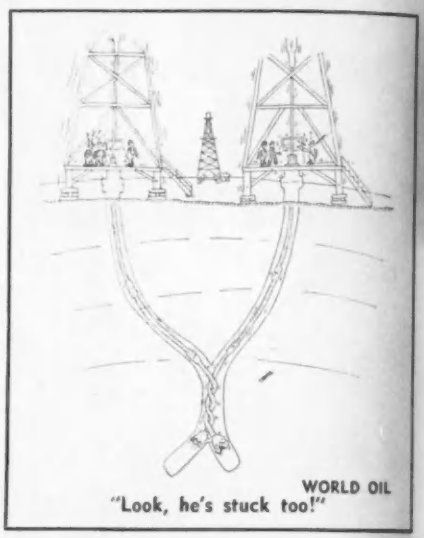
"Exactly. I remember how I used to act when I first fell in love. I would stand in front and look at her house, almost afraid to go in. Now, many a night, I find myself still doing the same thing.

### Neither Black Nor White

Billingsgate's fishing expedition had been a total failure, so on the way home he stopped at the local fish market. The dealer asked him what he wanted, and Billingsgate told him: "Just stand over there and throw me five of the biggest fish you've got."

"Throw 'em?" asked the dealer. "What for?"

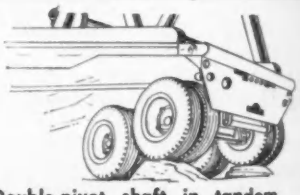
"So I can tell my wife I caught them," Billingsgate snapped. "I may be a poor fisherman, but I'm no liar."



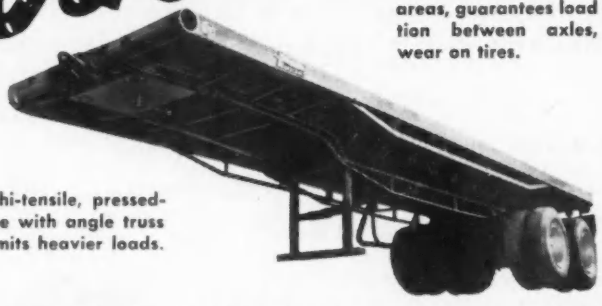
WORLD OIL

"Look, he's stuck too!"


SMOOTH RIDES IN THE ROUGH



Double-pivot shaft in tandem keeps load in balance in rough areas, guarantees load equalization between axles, reduces wear on tires.



Exclusive hi-tensile, pressed-steel frame with angle truss brace permits heavier loads.

Look to Loadcraft for dependability in meeting your oil field transportation requirements. Since the first pole trailer was built 40 years ago by Fred Spencer, trailer manufacturers have attempted to duplicate Spencer quality. Pulls easier because of Spencer True-Beam Axle with machined-in camber, for correct toe-in, maximum tire life. Optional rolling tail pipe for rear loading has self-aligning roller bearings in each end. Find out for yourself that a Spencer Trailer is a quality trailer.

WRITE FOR LITERATURE

Choose from a complete line of Pole and Pipeline Trailers, as well as tandem or single-axle, semi-floats, or low-beds.

Spencer-Safford LOADCRAFT

AUGUSTA, KANSAS